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ANNUAL REPORT

GRADUATE COLLEGE

UNIVERSITY OF ILLINOIS

1956 - 1957

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I. GENERAL GRADUATE COLLEGE POLICY AND EDUCATIONAL OBJECTIVES

During the academic year 1956-57 the Graduate College continued to place high standards of scholarship and research at the forefront of its general objectives. To further the attainment of this end, the College has reexamined certain phases of graduate student activities from admission to the final examination for an advanced degree. A new flexible plan for admissions was formulated and approved to be put into effect during the academic year 1957-58. This plan makes possible the utilization of subjective judgments as well as objective criteria concerning students to be admitted as candidates for advanced degrees. It is our hope that the revised admissions policy, together with our improved fellowship-scholarship program, will improve the quality of our students in the years ahead.

The Executive Faculty of the Graduate College has also been favorably disposed to the idea of encouraging students to complete their graduate work as quickly as possible, consistent with sound educational policy. Unduly prolonged programs of study are now being discouraged by several measures that promise to be effective. This is being done not to eliminate qualified candidates but to increase the likelihood that qualified candidates will actually finish and thus benefit more fully from advanced training. In keeping with this idea, the Graduate College is endeavoring to discourage haphazard and ill-planned programs of study intended to lead to advanced degrees.

The Graduate College is looking forward to increasing its support of research and scholarship on the campus through appointments on the Special Graduate Fund. Unfortunately, this fund was practically depleted during recent years because of the transfer of salary items to other colleges in the University. However, an effort has been made to restore the effectiveness of this fund by some additions beginning in the 1957-59 biennium. It is hoped that this fund can ultimately be enlarged to the point where it can be used to promote creative work in the University.

Between June 1956 and June 1957 the Graduate College approved 86 new and revised course proposals. During the same interval, the College appointed 37 persons to full standing, 28 persons to Master's standing, and 41 to the Graduate Teaching Faculty.

II. GRADUATE FELLOWSHIPS

During the past year the Graduate College requested and received authorization to award an increased number of fellowships for the academic year 1957-58. Funds for 175 fellowships were provided, which represents a substantial increase over the 132 for 1956-57. In addition the College was authorized to award 200 tuition and fee scholarships, including approximately 35 for awards to nominees of most of the four-year colleges in the State of Illinois. (The college nominee plan for scholarships was well received by the colleges around the state.) Of all the activities of the Graduate College, the fellowship-scholarship program is one of the most rewarding, for it contributes directly to the improvement of our scholastic level and ultimately to our standing in the scholarly world. Detailed statistical tables may be found in Appendix C.

III. RESEARCH ACTIVITIES

One of the most important functions of the Graduate College is that of encouraging creative scholarship and research in the University. The research endeavors of our faculty are supported by the various departments, by the University Research Board, and through outside grants. Well over $10,000,000 was requested from outside agencies through proposals approved by the Chairman of the University Research Board during the last year. In addition the Research Board allocated $494,717.50 in support of individual and group research projects. Of this total approximately 73 per cent came from the Research Board's share of indirect costs. A breakdown of the allocations made by the Research Board appears in the following table and Appendix A.

For general University purposes	$135,563.00
For the agricultural sciences, Urbana	21,229.50
For the biological sciences, Urbana	50,004.88
For the fine arts, Urbana	525.00
For the humanities, Urbana	16,369.17
For the library, Urbana	27,550.00
For the physical sciences, Urbana	164,978.04
For the social sciences, Urbana	69,611.11
For the Chicago Undergraduate Division	8,886.80
	$494,717.50

In addition to making appropriations in support of research, the University Research Board examined applications for sabbatical leaves of absence and made its recommendations to the President concerning such leaves.

IV. SCIENTIFIC AND SCHOLARLY PUBLICATIONS

A list of publications, books in progress and manuscripts accepted by the editors, appears in Appendix B. During the past year, the University undertook the publication of a new journal entitled Illinois Journal of Mathematics. The cost of this publication is borne largely by the George A. Miller Endowment Fund, with some supplementary assistance from the University Research Board. The scholarly character of the articles appearing in the first two issues of this Journal is evidence of a highly successful beginning.

V. ASSOCIATED ENTERPRISES

There are a number of special laboratories and research units associated with the Graduate College which have continued to function effectively. The Illinois Historical Survey, under the directorship of Professor J. W. Swain, maintains historical material relating to the history of Illinois. This is accomplished through the purchase and cataloging of manuscripts and microfilms.

The Physical Environment Unit, as in the past, has made its facilities available for research by individuals from many departments such as Physical Education, Home Economics, Mechanical Engineering, and Physiology.

The Radiocarbon Laboratory has offered instruction and provided advice in connection with the utilization of radio isotopes for tracer studies. This work is particularly important in connection with nutritional investigations.

The Digital Computer Laboratory has continued to be one of the most productive and successful ventures on the University of Illinois campus. The international reputation of our computing laboratory has attracted researchers and students from many lands. Moreover, copies of the Illiac have been constructed or are in the process of construction, at other installations. The first unit of a much needed new computer building was authorized for construction during 1957-58.

During the past academic year, preliminary work was carried out in connection with the Center for Data Processing. The committee in charge of data processing has already formulated one new course and is in the process of working out additional courses of instruction to fill out a much needed curriculum.

The Institute of Communications Research, which has been under the Graduate College for several years, has now been transferred to the jurisdiction of the College of Journalism and Communications. The Institute has been concerned with mass communications as well as communications on the micro scale.

VI. GRADUATE COLLEGE AT THE CHICAGO PROFESSIONAL COLLEGES

A major change in requirements for graduate degrees became effective with the academic year corresponding to this annual report. Beginning with the fall quarter registration, all new students were required to complete three units of formal course work for the Master of Science degree and seven units for the Doctor of Philosophy degree. The burden of this requirement seems to fall mainly on students pursuing graduate work in the applied areas since formal course offerings are not available in those areas and necessitates their registration for courses offered by the basic science departments. Actually, this has accomplished the chief objective sought by the provision since it had been repeatedly noted that graduate students in applied areas were not adequately oriented in the basic sciences pertaining to their research.

In conformity to the revised rule pertaining to allowable maximum units for graduate students who are also University employees, the following schedule was interpolated to conform to the 3 unit maximum per quarter current on this campus.

Employment	Statutory Maximum	Discretionary Maximum
100%	1	1½
75%	1½	2
50%	2	2½
25%	2½	3

A number of policy questions were considered. The advice of the Executive Faculty of the College of Medicine, and also the College of Dentistry, is to be sought regarding the question of allowing medical or dental students who have a "B" average to pursue graduate work after completion of three quarters of the professional curriculum. The present rule requires four quarters.

A proposal to require all candidates to submit to a written examination in the major and minor, in addition to the currently required oral examination, was discussed, but positive action was deferred. Whether or not graduate faculty appointments should be made for specific periods of time, and if the current faculty list should be revised, were additional questions on which no positive action was taken. The desirability of a uniform degree for all clinical departments, such as a Master of Science in Clinical Sciences, received some deliberation and is to be pursued.

During the year, the Graduate College appointed two persons to full standing, two to Master's standing, and four to limited standing.

Four new courses were added, including one in Science Orientation, which is one that will be recommended for all new graduate students.

The procurement of additional sums for fellowship stipends was accomplished by requests to the National Science Foundation, United States Public Health Service and to private foundations. The number of appointments for 1957-58 are shown below:

University, 1957-58	8
University, 1957 Summer Session	10
Government and Foundation, 1957 Summer Session	21

Several members appreciated the opportunity to visit and participate in the deliberations of the Executive Faculty in a regular meeting at Urbana.

No election was held at the annual meeting of the graduate faculty. It was decided to defer action until the fall quarter when an organizational meeting will be held to adapt ourselves to the provisions of the new University Statutes. Members of the current Executive Committee will continue to serve until replaced.

Physical quarters are still inappropriate and highly inadequate. A solution is in view within a short time.

Enrollment has remained stabilized at about 100 students per quarter, including the summer quarter. Details of classification of students and their relative numbers is summarized in the following tables.

TABLE I

ENROLLMENT

	1956		1957		
	SUMMER	FALL	WINTER	SPRING	ANNUAL TOTALS
Students registered during previous quarter	59	65	90	93	307
New and those not registered during previous quarter	34	39	12	9	94
TOTAL REGISTRATION	93	104	102	102	401
Duplicates	(16)	(6)	(7)	(7)	(36)
Withdrawals during the quarter		2	2		
Total completing each quarter's work	93	102	100	102	
Students not returning after completion of the quarter	24	16	9	43	

TABLE II

REGISTRATION ACCORDING TO THE MAJOR FIELD OF STUDY

						DEGREES CONFERRED JUNE, 1957	
DEPARTMENTS	SUMMER	FALL	WINTER	SPRING	TOTAL	M.S.	Ph.D.
Anatomy	5	8	6	6	25		
Bacteriology	5	7	5	7	24	4	1
Biol. Chemistry	15	25	25	25	90	3	
Medicine		1	1		2		
Pathology	4	3	4	3	14	2	
Pharmacology	15	9	11	12	47	4	
Physiology	17	18	17	15	67	2	1
Physiology (Clinical Science)	2	2	3	3	10		
*Psychiatry (Special)	3				3		
Public Health (course work only)	2				2		
Radiology		1			1		
Surgery	5	6	5	6	22	2	
TOTAL Graduate College registration and degrees in the medical sciences	73	80	77	77	307	17	2
Histology	1	1	3	3	8	1	
Oral Pathology	1	2	2	2	7	2	
Orthodontics	7	6	6	4	23	2	
Pedodontics	2	1	1	1	5	2	
TOTAL Graduate College registration and degrees of students majoring in dental fields	11	10	12	10	43	7	
Chemistry (Pharmaceutical)	7	12	11	13	43	1	3
Pharmacognosy							1
Pharmacy	2	2	2	2	8	1	
TOTAL Graduate College registration and degrees of students majoring in pharmacy fields	9	14	13	15	51	2	4
GRAND TOTAL of Graduate College registrants and the degrees conferred	93	104	102	102	401	26	6

* Special USPHS fellows. Degrees to be obtained elsewhere.

TABLE III

CATEGORIES OF STUDENTS ACCEPTED FOR GRADUATE WORK

A. Not enrolled for professional degree	
1. Bachelor's degree only	43
2. Master's degree	40
B. Currently enrolled for professional degree	
1. Enrolled for M.D.	22
2. Enrolled for D.D.S.	3
3. B.S. in Pharmacy	0
C. Professional college graduates	
(obtained prior to entrance in Graduate College)	
1. Have the M.D.	17
2. Have the D.D.S.	18
3. Have the B.S. in Pharmacy	17
TOTAL	52

SUBCOMMITTEE OF THE UNIVERSITY RESEARCH BOARD FOR THE CHICAGO PROFESSIONAL COLLEGES

H. F. Dowling
R. A. Harvey
Max Rafelson, Jr.
W. V. Whitehorn

Milan Novak, Chairman

The subcommittee allocated $70,525.88 in support of 46 research projects as follows:

Anatomy	(6)*	$ 8,195.00
Applied Materia Medica and Therapeutics	(1)	2,315.00
Bacteriology	(6)	11,965.00
Biological Chemistry	(8)	11,784.88
Chemistry (Pharmaceutical)	(2)	2,175.00
Dentistry	(1)	416.00
Medicine	(4)	6,250.00
Neurology and Neurological Surgery	(1)	2,100.00
Pathology	(2)	2,870.00
Pharmacognosy	(2)	2,725.00
Pharmacology	(2)	1,600.00
Physiology	(6)	8,670.00
Preventive Medicine	(3)	4,360.00
Surgery	(2)	5,100.00
	(46)	$70,525.88

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* Number of grants

VII APPENDICES - URBANA

APPENDIX A

UNIVERSITY RESEARCH BOARD

UNIVERSITY RESEARCH BOARD

During 1956-57 the membership of the University Research Board was as follows:

J. F. Bell	M. V. Novak
C. A. Brandly	M. M. Rhoades
L. J. Cronbach	Frederick Seitz
L. H. Lanier	J. R. Smiley
N. M. Newmark	W. A. Wood

F. T. Wall, Chairman

For grants-in-aid of research in the University, the Board received from recurring funds during 1956-57 a total of $134,200.00 and as its share of indirect costs collected on research contracts the sum of $364,663.83. In addition, the Board had received other funds from the University of Illinois Foundation and carried over some funds from indirect costs from the previous year. The Board made individual appropriations totaling $494,717.50. The distribution of grants by general areas was as follows:

For general University purposes	$135,563.00
For the agricultural sciences, Urbana	21,229.50
For the biological sciences, Urbana	50,004.88
For the fine arts, Urbana	525.00
For the humanities, Urbana	16,369.17
For the library, Urbana	27,550.00
For the physical sciences, Urbana	164,978.04
For the social sciences, Urbana	69,611.11
For the Chicago Undergraduate Division	8,886.80
	$494,717.50

The following is a list of grants by areas and departments. (Small sums used for completing earlier projects or to make up minor overdrafts are not included.)

I. FOR GENERAL UNIVERSITY PURPOSES

		Total
Contributions on behalf of the University	(2)*	$ 500.00
Administrative and general services	(8)	16,504.00
Faculty Fellowships	(1)	19,800.00
Provision of special facilities for inter-departmental use	(10)	98,759.00
Subtotal	(21)	$135,563.00

---

* Number of grants

II. FOR THE AGRICULTURAL SCIENCES, URBANA

		Total
Agricultural Economics	(2)	$ 4,500.00
Agronomy	(2)	5,800.00
Animal Science	(1)	1,351.50
Dairy Science	(2)	3,455.00
Food Technology	(2)	4,833.00
Plant Pathology	(1)	1,290.00
Subtotal	(10)	$ 21,229.50

III. FOR THE BIOLOGICAL SCIENCES, URBANA

Bacteriology	(7)	$ 16,009.70
Botany	(9)	18,493.49
Division of General Studies	(2)	4,370.00
Entomology	(4)	2,433.33
Physiology	(1)	2,500.00
Zoology	(6)	6,198.36
Subtotal	(39)	$ 50,004.88

IV. FOR THE FINE ARTS

Architecture	(1)	$ 125.00
Art	(1)	400.00
Subtotal	(2)	$ 525.00

V. FOR THE HUMANITIES, URBANA

Classics	(6)	$ 6,992.49
English	(11)	5,310.01
German	(2)	2,166.67
Journal of English and Germanic Philology	(1)	700.00
University Press	(1)	1,200.00
Subtotal	(21)	$ 16,369.17

VI. FOR THE LIBRARY, URBANA

Library	(4)	$ 27,550.00
Subtotal	(4)	$ 27,550.00

VII. FOR THE PHYSICAL SCIENCES, URBANA

		Total
Astronomy	(3)	$ 7,013.00
Chemistry and Chemical Engineering	(18)	41,891.18
Civil Engineering	(1)	1,625.00
Electrical Engineering	(2)	41,750.00
Geology	(3)	10,040.36
Illinois Journal of Mathematics	(1)	6,000.00
Mechanical Engineering	(1)	6,935.00
Mining and Metallurgical Engineering	(1)	12,177.00
Physics	(8)	37,546.50
Subtotal	(38)	$ 164,978.04

VIII. FOR THE SOCIAL SCIENCES, URBANA

Economics	(5)	$ 7,055.66
Geography	(2)	3,924.20
History	(17)	12,833.34
Illinois Historical Survey	(1)	360.50
Labor and Industrial Relations	(1)	750.00
Law	(2)	10,050.00
Marketing	(1)	1,600.00
Music	(3)	2,550.00
Philosophy	(1)	300.00
Political Science	(3)	1,805.00
Psychology	(8)	19,735.77
Social Work	(1)	400.00
Sociology and Anthropology	(7)	7,850.00
Speech	(1)	206.64
University Press	(1)	190.00
Subtotal	(54)	$ 69,611.11

IX. FOR THE CHICAGO UNDERGRADUATE DIVISION

Biological Sciences	(9)	$ 8,386.80
Social Sciences	(2)	500.00
Subtotal	(11)	$ 8,886.80
Grand Total	(186)	$ 494,717.50

APPENDIX B

SCIENTIFIC AND SCHOLARLY PUBLICATIONS

SCIENTIFIC AND SCHOLARLY PUBLICATIONS

The Illinois Studies Series

Books Published

Milligan: Heywood's Poetical Works (LL)
Shawver: Retail Price Determination (SS)
Sherbo: Samuel Johnson, Editor of Shakespeare (LL)
Silver: Lincoln's Supreme Court (SS)

Books in Process

LeSage: Marcel Proust and his Literary Friends (LL)
Murray: United Nations Trusteeship System (SS)
Nicholas: Milton's History of Britain (LL)
Stannard: North American Tubulifera (BM)
Turyn: Manuscript Tradition of Euripides (LL)

Manuscripts Accepted

Beer: Emergence of the German Dyestuff Industry (SS)
Harper: Regulation of the Trucking Industry (SS)
Phillips: The Small Business in America (SS)
Riggs: Politics in the United Nations (SS)

Non-Serial Publications

Books Published

Baldwin:	Small Latine and Lesse Greeke (reprint)
Contemporary American Painting and Sculpture	
Cronbach and Gleser:	Psychological Tests and Personnel Decisions
Davis:	Life of Wilkie Collins
Flanagan, ed:	Zury: Meanest Man in Spring County
Fletcher:	Intellectual Development of John Milton
Hodgell:	Contemporary Farmhouses
Kirschner:	The Zeppelin in the Atomic Age
Longenecker:	Faculty Compensation Policies
Peterson:	Magazines in the Twentieth Century
Porter and Johnson:	National Party Platforms
Rattner:	A Portfolio
Ross:	The Evolution of the Mountain Caddisflies
Siebert, Schramm, Peterson:	Four Theories of the Press
Steward:	The People of Puerto Rico
White, ed.:	Playfair's Illustrations of the Huttonian Theory
Wright, ed.:	Victorian Bibliographies

Books in Process

Case and Williams:	Fifty Years of Farm Management
Kampmeier:	Atlas of the Head and Neck
Landis and Freeman:	Letters of the Brownings to G. Barrett
Lewis, Oscar:	Studies in a North Indian Village
Osgood and others:	The Measurement of Meaning

LaRocque: The Admirable Discourses of Bernard Palissy

Shattuck, ed.: Correspondence of Bulwer and Macready

Tietze and Kahane: The Lingua in the Levant

Zirner: Costuming for the Modern Stage

APPENDIX C

STATISTICAL TABLES - URBANA

TABLE I

GRADUATE AWARDS

1957-58

	FELLOWS					SCHOLARS
	Academic Year		1957 Summer Session			Academic Year
Department	Univ.	Special*	Univ.	Special*	Faculty	University
Accountancy	4		1		1	3
Aeronautical Engineering						1
Agricultural Economics		4				1
Agronomy	4	3				4
Animal Science	1					1
Architecture		1			1	1
Art	3				3	2
Astronomy	1	1				
Bacteriology	3		1			
Biological Sciences						2
Botany	4	1				
Business	2					2
Business Education			1			
Ceramic Engineering		6				
Chemistry & Chemical Eng.	27	41	7	3	2	2
City Planning	1					1
Civil Engineering	10	3				5
Classics	3		1			3
Dairy Science	1	1				1
Digital Computer	1					
Economics	2	2	1			4
Education	17		6			12
Electrical Engineering	1	5				2
English	12	1	8		2	2
Entomology	2					1
Food Technology	2	2				2
French	3		6		1	2
Geography	1		1		1	1
Geology	6	5	1			1
German	1					
History	11	2	3			4
Home Economics		3				
Horticulture	1	1				2
Journalism						2
Labor & Industrial Relations	2					13
Law	1					
Library Science	4	1				9
Management	1					2
Marketing	2					2
Mathematics	11	3	5		1	2

*Includes Industrial, Endowed and Postdoctoral

	FELLOWS					SCHOLARS
	Academic Year		1957 Summer Session			Academic Year
Department	Univ.	Special*	Univ.	Special*	Faculty	University
Mechanical Engineering	1	2	1			4
Mining & Metallurgical Eng.		1				
Music	9		1		2	10
Philosophy	4		1		1	2
Physical Education	1		1			
Physico-Chemical Biology	1					
Physics	9	9				4
Physiology	2		1			1
Plant Pathology	2					
Political Science	8	4				3
Psychology	2		1		2	4
Social Work	1					5
Sociology & Anthropology	6		1		1	2
Spanish	2		1			
Speech	5	1	2			2
Theoretical & Applied Mechs.	2	2				1
Vet. Pathology & Hygiene						1
Zoology	1		1		1	1
Chicago Undergraduate						
Biological Sciences					1	
English					2	
TOTAL **	201	105	53	3	22	132

Fellows:

University	
Academic Year	196
One Semester Only	4
Nonresident	1
University Research Board	
Predoctoral	2
Postdoctoral	4
Endowed	24
Industrial	75

Scholars:

University	53
Industrial	3
University Research Board	22

---

*Includes Industrial, Endowed and Postdoctoral

**Figures include acceptances as of July 1, 1957

TABLE II

ENROLLMENT

1947-48 -- 1956-57

Year	Residence		Absent Under Leave	Total
	Men	Women		
1956-57	3990	1379	76	5445
1955-56	3743	1279	82	5104
1954-55	3570	1303	85	4958
1953-54	3693	1275	53	5021
1952-53	3876	1252	58	5186
1951-52	4293	1242	47	5582
1950-51	5034	1531	23	6588
1949-50	4242	1329	25	5596
1948-49	3742	1041	8	4791
1947-48	2838	962	5	3805

TABLE III

CLASSIFIED REGISTRATION

DESCRIPTION	1956-57	Ave. per year 1951-52 - 1955-56
Students on educational and scientific staffs	2103	1758
Scholars and fellows	438	233
Students in absentia	76	65
Professional engineers	3	2
Others in residence	2825	3112
Total in year	5445	5170
Extramural	1529	1570

TABLE IV

DEPARTMENTAL CLASSIFICATION

DEPARTMENT	Students in Residence 1956-57	Students in Residence Ave. per year 1951-52 - 1955-56
ARTS AND SCIENCES		
Astronomy	1	0.2
Bacteriology	40	43
Biological Sciences	12	16
Teaching of Biological Sciences and General Science	22	29
Botany	28	38
Chemistry	277	275
Chemical Engineering	44	44
Teaching of Chemistry	7	1
Classics	13	10
Teaching of Latin	2	1
English	161	146
Teaching of English	15	14
Entomology	37	43
French	23	23
Teaching of French	2	1
Geography	38	40
Teaching of Geography	0	1
Geology	86	74
German	18	17
Teaching of German	0	1
History	105	90
Mathematics	135	109
Statistics	11	16
Teaching of Mathematics	21	16
Teaching of Mathematics and the Physical Sciences	1	1
Philosophy	29	28
Physical Sciences	0	0.4
Teaching of Physical Sciences	1	1
Physiology	43	62
Political Science	46	44
Psychology	103	126
Social Science	11	20
Teaching of Social Studies	22	18
Sociology and Anthropology	55	55
Spanish and Italian	37	34
Teaching of Spanish	4	1
Speech	90	78
Speech Correction	33	29
Teaching of Speech	3	5
Zoology	62	74
	1638	1625

DEPARTMENT	Students in Residence 1956-57	Students in Residence Ave. per year 1951-52 - 1955-56
AGRICULTURE		
Agricultural Economics	72	66
Agricultural Education	11	16
Agricultural Engineering	15	10
Agronomy	70	58
Animal Science	46	41
Animal Nutrition	22	22
Dairy Science	30	30
Food Technology	44	31
Dairy Technology	9	7
Home Economics	45	29
Home Economics Education	68	58
Horticulture	25	18
	457	386
COMMERCE		
Accountancy	77	60
Business	23	16
Commercial Teaching	11	12
Economics	84	88
Management	34	22
Marketing	20	14
	249	212
EDUCATION	1283	1408
Education of Deaf	2	2
Education of Mentally Handicapped Children	5	7
	1290	1417
ENGINEERING		
Aeronautical Engineering	22	14
Ceramic Engineering	16	19
Civil Engineering	179	159
Electrical Engineering	188	154
Mechanical Engineering	74	64
Mining and Metallurgical Engineering	38	19
Physics	167	161
Teaching of Physics	0	1
Theoretical & Applied Mechanics	38	24
	722	615

DEPARTMENT	Students in Residence 1956-57	Students in Residence Ave. per year 1951-52 - 1955-56
FINE AND APPLIED ARTS		
Architecture	46	35
Art	29	27
Art Education	13	18
Art History	8	2
Music	90	69
Music Education	183	121
Landscape Architecture	0	1
City Planning	18	4
	387	277
INSTITUTE OF LABOR & INDUSTRIAL RELATIONS	71	52
JOURNALISM	40	31
Television	6	2
LAW	5	5
LIBRARY SCIENCE	190	226
MASS COMMUNICATIONS	18	24
PHYSICAL EDUCATION	106	94
Health Education	18	13
Recreation	28	16
PHYSICO-CHEMICAL BIOLOGY	6	11
PLANT PATHOLOGY	21	19
SOCIAL WORK	53	43
VETERINARY PATHOLOGY & HYGIENE	16	13
UNCLASSIFIED	45	23
LEAVES OF ABSENCE	76	65
PROFESSIONAL ENGINEERS	3	2
GRAND TOTAL	5445	5170

TABLE V

GEOGRAPHICAL CLASSIFICATION

UNITED STATES AND TERRITORIES	1956-57	Ave. per year 1951-52 - 1955-56
Alabama	20	24
Arizona	5	8
Arkansas	20	21
California	44	53
Colorado	21	22
Connecticut	29	31
Delaware	4	9
District of Columbia	20	21
Florida	22	26
Georgia	23	23
Idaho	12	12
Illinois	3340	3059
Indiana	89	109
Iowa	44	47
Kansas	41	49
Kentucky	38	41
Louisiana	33	38
Maine	10	5
Maryland	16	18
Massachusetts	45	50
Michigan	59	62
Minnesota	39	44
Mississippi	37	41
Missouri	93	126
Montana	2	6
Nebraska	27	29
Nevada	0	1
New Hampshire	5	11
New Jersey	54	49
New Mexico	10	9
New York	200	197
North Carolina	34	22
North Dakota	9	9
Ohio	98	93
Oklahoma	34	29

UNITED STATES AND TERRITORIES	1956-57	Ave. per year 1951-52 - 1955-56
Oregon	7	13
Pennsylvania	87	97
Rhode Island	9	8
South Carolina	17	10
South Dakota	14	13
Tennessee	40	35
Texas	62	55
Utah	21	13
Vermont	5	5
Virginia	18	25
Washington	32	25
West Virginia	18	19
Wisconsin	51	64
Wyoming	3	4
Alaska	0	0.2
Hawaii	22	20
Puerto Rico	6	3
Subtotal - U.S. and Territories	4949	4803

FOREIGN COUNTRIES		
Afghanistan	1	1
Arabia	0	0.2
Argentina	3	1
Australia	2	4
Austria	1	1
Belgium	1	0.4
Bolivia	1	1
Brazil	6	4
British Columbia	0	1
Burma	2	1
Canada	51	53
Ceylon	1	1
Chile	3	2
China	61	54
Colombia	3	2

FOREIGN COUNTRIES	1956-57	Ave. per year 1951-52 - 55-56
Costa Rica	2	0.4
Cuba	3	3
Denmark	5	1
East Africa	0	0.4
Ecuador	1	1
Egypt	17	26
El Salvador	0	0.4
England	10	9
Ethiopia	3	0.4
Finland	3	2
Formosa	20	8
France	9	4
Germany	6	4
Greece	12	7
Guatemala	0	0.2
Holland	0	1
Honduras	0	0.4
Hungary	0	1
India	101	57
Indonesia	3	0.4
Iran	5	5
Iraq	4	5
Ireland	1	1
Israel	7	5
Italy	0	2
Jamaica	2	1
Japan	33	26
Jerusalem	1	0.2
Jordan	5	1
Korea	12	4
Lebanon	2	1
Malaya	0	2
Mexico	7	2
Netherlands	1	1
Netherland West Indies	0	1
Nigeria	6	1
Norway	3	2
Pakistan	8	9
Palestine	0	0.4
Panama	0	2

FOREIGN COUNTRIES	1956-57	Ave. per year 1951-52 - 55-56
Peru	2	1
Philippine Islands	15	10
Scotland	0	2
Siam	0	0.4
South Africa	5	2
Spain	1	1
Sweden	1	2
Switzerland	2	1
Syria	2	1
Thailand	15	8
Turkey	16	9
Venezuela	1	1
Viet-nam	1	1
Wales	0	0.2
West Africa	0	2
West Indies	0	0.4
Subtotal-Foreign Countries	496	367
Subtotal- U.S. and Territories	4949	4803
TOTAL	5445	5170

TABLE VI

DEGREES CONFERRED

FIELD OF STUDY	Ph.D.		A.M. and M.S.	
	1956-57	Ave. per year 1951-52--1955-56	1956-57	Ave. per year 1951-52--1955-56
Accountancy	1	5	8	12
Aeronautical Engineering	0	1	9	5
Agricultural Economics	5	6	13	13
Agricultural Education	#	#	1	3
Agricultural Engineering	#	#	5	3
Agronomy	3	9	20	10
Animal Nutrition	2	5	2	5
Animal Science	3	7	15	7
Anthropology	#	#	1	0.2
Architectural Engineering	#	#	7	4
Architecture	#	#	*0	6
Art Education	#	#	4	2
Art History	#	#	2	0
Astronomy	#	#	1	0
Bacteriology	2	5	2	6
Biological Sciences	#	#	2	5
Botany	4	4	6	4
Business	5	2	#	#
Ceramic Engineering	0	2	7	5
Ceramics	0	0.4	0	0.4
Chemical Engineering	6	9	12	12
Chemistry	50	57	19	25
City Planning	#	#	0	1
Civil Engineering	6	8	60	63
Classical Philology	0	1	#	#
Classics	#	#	0	1
Clinical Psychology	0	0.2	1	6
Commercial Teaching	#	#	3	1
Dairy Science	4	3	4	6
Dairy Technology	1	1	0	1
Economics	8	10	11	13
Education	6	6	**10	122
Education of the Deaf	#	#	0	0.4
Education of the Mentally Handicapped Children	#	#	2	4
Electrical Engineering	10	13	54	41
English	8	8	24	16
Entomology	7	8	5	7
Food Technology	5	5	9	4
French	4	1	8	4
Geography	3	1	9	8
Geology	5	5	17	20
German	3	1	5	2
Greek	#	#	1	0.4

# Degree not offered
* M.S. in Architecture discontinued as of 1955
** Note increase in Ed.M. (Professional Degree list)

Degrees Conferred, Continued:

FIELD OF STUDY	Ph.D.		A.M. and M.S.	
	1956-57	Ave. per year 1951-52--1955-56	1956-57	Ave. per year 1951-52--1955-56
History	9	4	19	13
Health Education	#	#	10	4
Home Economics	#	#	7	6
Home Economics Education	#	#	6	14
Horticulture	1	1	7	3
Journalism	#	#	9	7
Labor and Industrial Relations	#	#	18	10
Latin	#	#	1	1
Library Science	3	1	52	71
Management	#	#	4	6
Marketing	#	#	3	4
Mass Communications	1	3	#	#
Mathematics	7	9	27	19
Mechanical Engineering	6	3	25	18
Mining and Metallurgical Eng.	1	2	10	4
Music Education	#	#	43	29
Musicology	1	0	#	#
Philosophy	1	2	2	5
Physical Education	5	2	30	28
Physico-Chemical Biology	1	1	#	#
Physical Sciences	#	#	0	0.2
Physics	13	17	31	32
Physiology	5	4	7	15
Plant Pathology	3	3	2	3
Political Science	4	5	7	9
Psychology	9	15	8	8
Recreation	#	#	7	4
Sanitary Engineering	0	0.4	8	1
Social Sciences	#	#	5	7
Sociology	3	1	7	8
Spanish and Italian	0	3	10	8
Speech	12	6	14	13
Speech Correction	#	#	4	7
Statistics	0	1	1	6
Teaching Biol. Sci. & Gen. Sci.	#	#	10	13
Teaching of Chemistry	#	#	3	1
Teaching of English	#	#	6	3
Teaching of French	#	#	0	0.4
Teaching of Geography	#	#	0	1
Teaching of German	#	#	0	0.4
Teaching of Latin	#	#	2	0.2
Teaching of Mathematics	#	#	8	5
Teaching of Math. & Physical Sci.	#	#	0	0.2
Teaching of Physical Sciences	#	#	0	0.4
Teaching of Physics	#	#	0	0.2
Teaching of Social Studies	#	#	11	10
Teaching of Spanish	#	#	3	1
Teaching of Speech	#	#	2	2
Theoretical and Applied Mechanics	4	4	8	6
Veterinary Pathology and Hygiene	1	2	1	1
Vocational Agriculture	#	#	0	0.2
Zoology	10	8	5	13
Subtotal	251	281	802	870

# Degree not offered

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ANNUAL REPORT

GRADUATE COLLEGE

UNIVERSITY OF ILLINOIS

1958 - 1959

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I. THE ADMINISTRATION OF GRADUATE EDUCATION

The Graduate College of the University of Illinois began its second half century of service during 1958-59 conscious of its obligation to help meet the ever increasing demand for highly trained personnel in all areas of American life. Second only to the College of Liberal Arts and Sciences in first semester registration, it was again the largest college on campus in terms of second semester and summer session enrollment. Faced with an almost certain quantitative expansion in the years ahead, the Graduate College will continue to place primary emphasis upon the qualify of its educational product.

One of the most effective means for pursuing this goal is the fellowship-scholarship program. Of all the activities of the Graduate College bearing directly on students, none is more rewarding than the fellowship program which contributes so markedly toward strengthening scholarship at the University and ultimately to our standing in the scholarly world at large. During the past year the Graduate College awarded 499 fellowships and 175 tuition scholarships to individuals selected from the more than 2000 who applied for financial aid. (See Table I for a breakdown of these awards by departments.) In addition to its own grants, the University continued to benefit from a wide variety of industrial and endowed fellowships administered by the Graduate College.

The greatly expanded nation-wide fellowship programs of the National Science Foundation and the Woodrow Wilson National Fellowship Foundation were reflected in the choice of this institution by an increasing number of award winners. In particular, the University of Illinois has benefited greatly from the National Science Foundation Cooperative Fellowship program.

A new factor was introduced into graduate education as a result of the enactment by Congress of the National Defense Education Act in September, 1958. Title IV of this Act provides for the support of approved graduate programs by means of National Defense Fellowships to be held by each recipient for a period of three years. Though there was some disappointment at the University of Illinois because so few of our recommended programs were approved by the U. S. Office of Education, the University was awarded a total of thirteen National Defense Fellowships in the areas of Experimental Psychology (5), Business Administration (5), and Radio Astronomy (3).

Another feature of the National Defense Education Act of interest to the Graduate College is Title II which provides for loans to needy students. Open to both graduate and undergraduate students, these funds, as they become available, will usefully supplement existing University resources.

By way of expanding its program offerings, the Executive Committee of the Graduate College, during the course of the year, approved the establishment of a Graduate School of Business Administration operating within the educational framework of the Graduate College. In addition, the College approved the requested change in name of the Library School to that of Graduate School of Library Science. The Executive Committee also approved several new degree programs, namely a Ph.D. program in Finance, a Ph.D.

program in Home Economics (with areas of specialization in foods and nutrition), a Master of Arts in Dance, a Master of Comparative Law, and a Master of Commerce, Master of Business Administration, and Doctor of Business Administration. (The latter three plus a previously established program leading to the Master of Accounting Science, are professional degree programs within the Graduate School of Business Administration.)

Upon the recommendation of its Committee on Courses and Curricula, the Executive Committee authorized 59 new courses for graduate students; 175 existing courses were revised and 18 others were eliminated. During the academic year 1958-59 43 individuals were nominated by departments for full standing on the Graduate Faculty and of these 29 were approved by the Executive Committee and the Dean. Fifty-two faculty members were granted master's degree standing and 54 limited standing.

It is worth noting that, following a Graduate College recommendation made in 1954, steps have been taken to provide necessary graduate student housing for unmarried students. During 1958-59 space was made available in Taft and Van Doren Houses to single male graduate students, and the anticipated completion of the Orchard Place Apartments in September, 1959 will add significantly to the facilities available to married students.

II. CENTER FOR ADVANCED STUDY

Perhaps the most noteworthy event of 1958-59 was the establishment by the University Board of Trustees of the Center for Advanced Study as a special unit of the Graduate College. The primary purpose of the Center is the encouragement of creative achievement and scholarship by providing recognition to scholars of the highest distinction and incentives for the highest level of scholarly achievement.

Two types of affiliation with the Center are provided for: members and associate members. Members are appointed for renewable five-year terms by the Board of Trustees on the recommendation of the President. They are to receive annual salaries comparable to the best professorial salaries in American universities. By negotiation with the head or chairman of his department and the Dean of the Graduate College, and with the concurrence of the appropriate undergraduate Dean, a member may be given reduced assignments for classroom teaching, committee work, advising, and the like, so that he may devote a larger portion of his time to research. The members constitute the Executive Committee of the Center, and the Dean of the Graduate College is its executive officer *ex officio*.

Associate members are appointed for one-year or two-year terms by the Board of Trustees on the recommendation of the President. Any member of the faculty may apply to the Dean of the Graduate College for associate membership, and the Dean, after consultation with the Executive Committee of the Center, will make his recommendations to the President. By negotiation with the appropriate University and departmental officers, an associate member may be freed of all teaching duties (except, if he remains on campus, the direction of graduate theses) in order that he may devote himself more fully to research. Scholars coming from other locations may also be appointed as associate members.

The University Board of Trustees, on the recommendation of President Henry, appointed as the first Members of the Center Professor John Bardeen of Electrical Engineering and Physics, Professor Joseph L. Doob of Mathematics, Professor Reynold C. Fuson of Chemistry, and Professor Julian H. Steward of Anthropology. They will assume their new positions on September 1, 1959.

It is hoped that it will be possible to appoint some associate members during 1959-60. It is also expected that the Center will attract financial support from agencies outside the University to provide endowed chairs and other encouragement for members and associate members.

III. SUPPORT OF RESEARCH

One of the Graduate College's most significant functions is that of encouraging and supporting creative scholarship and research by members of the University staff. The research efforts of our faculty are financially supported by departmental budgets, by grants from outside agencies, and by the University Research Board.

During 1958-59 the members of the University Research Board were as follows:

J. F. Bell
L. J. Cronbach
Joseph Kastelic
N. M. Newmark
M. V. Novak
Sherman Paul
Frederick Seitz
R. P. Stearns
A. H. Taub
F. T. Wall, Chairman

For grants-in-aid of research, the Board received from recurring funds during 1958-59 a total of $142,200, and as its share of indirect costs collected from research contracts with outside agencies, the sum of $391,309.42. In addition, the Board had received other funds from the University of Illinois Foundation and carried over some funds from indirect costs from the previous year. During the fiscal year 1958-59, the Board made individual appropriations totaling $520,483.62. The appropriations, classified by areas and departments, were made as follows:

For general University purposes	$ 91,403.59
For the agricultural sciences, Urbana	35,127.00
For the biological sciences, Urbana	66,051.01
For the fine arts, Urbana	6,560.00
For the humanities, Urbana	19,427.10
For the library, Urbana	41,942.79
For the physical sciences, Urbana	156,601.33
For the social sciences, Urbana	88,043.80
For the Chicago Undergraduate Division	15,327.00
	$520,483.62

I. FOR GENERAL UNIVERSITY PURPOSES

		Total
Contributions on behalf of the University	(2)*	$ 500.00
Administrative and general services	(6)	47,241.63
Faculty Fellowships	(1)	22,500.00
Provision of special facilities for interdepartmental use	(7)	21,161.96
Subtotal	(16)	$ 91,403.59

II. FOR THE AGRICULTURAL SCIENCES, URBANA

		Total
Agronomy	(1)	$ 3,500.00
Animal Sciences	(1)	4,000.00
Dairy Science	(2)	10,206.00
Food Technology	(3)	8,680.00
Horticulture	(1)	2,310.00
Plant Pathology	(1)	1,050.00
Veterinary Medicine	(2)	5,381.00
Subtotal	(11)	$ 35,127.00

III. FOR THE BIOLOGICAL SCIENCES

		Total
Bacteriology	(4)	$ 6,282.50
Botany	(5)	10,568.00
Entomology	(3)	9,127.08
Physiology	(4)	7,651.43
Zoology	(14)	32,422.00
Subtotal	(30)	$ 66,051.01

IV. FOR THE FINE ARTS, URBANA

		Total
Art	(3)	$ 1,400.00
Music	(5)	5,160.00
Subtotal	(8)	$ 6,560.00

V. FOR THE HUMANITIES, URBANA

		Total
Classics	(4)	$ 3,452.50
English	(10)	5,163.30
French	(4)	1,580.00
German	(3)	1,728.00
Journal of English and Germanic Philology	(1)	750.00
Spanish and Italian	(6)	5,753.30
University Press	(1)	1,000.00
Subtotal	(29)	$ 19,427.10

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* Number of Grants

VI. FOR THE LIBRARY, URBANA

		Total
Library	(15)	$ 41,942.79
Subtotal	(15)	$ 41,942.79

VII. FOR THE PHYSICAL SCIENCES, URBANA

		Total
Astronomy	(3)	$ 11,200.00
Chemistry and Chemical Engineering	(9)	46,150.00
Civil Engineering	(3)	4,405.00
Electrical Engineering	(4)	15,850.00
Geology	(7)	5,710.65
Mining and Metallurgical Engineering	(2)	7,750.00
Physics	(4)	60,185.68
Theoretical and Applied Mechanics	(2)	5,350.00
Subtotal	(34)	$156,601.33

VIII. FOR THE SOCIAL SCIENCES, URBANA

		Total
Anthropology	(2)	$ 15,350.00
Economics	(2)	1,300.00
Education	(2)	4,550.00
Finance	(1)	1,200.00
Geography	(1)	3,600.00
History	(13)	21,950.00
Institute of Government and Public Affairs	(4)	3,650.00
Institute of Labor and Industrial Relations	(4)	7,147.00
Institute for Research on Exceptional Children	(1)	1,350.00
Marketing	(3)	1,545.00
Political Science	(7)	8,844.45
Psychology	(7)	8,314.00
Sociology	(6)	8,768.35
Speech	(1)	475.00
Subtotal	(54)	$ 88,043.80

IX. FOR THE CHICAGO UNDERGRADUATE DIVISION

		Total
Biological Sciences	(4)	$ 11,727.00
Physical Sciences	(2)	3,200.00
Social Sciences	(1)	400.00
Subtotal	(7)	$ 15,327.00
Grand Total	(204)	$520,483.62

IV. ASSOCIATED ENTERPRISES

Digital Computer Laboratory
Electron Microscope Laboratory
Glassblowing Laboratory
Illinois Historical Survey
Natural Areas and Uncultivated Lands
Photosynthesis Laboratory
Physical Environment Unit
Radiocarbon Laboratory

Digital Computer Laboratory

The Digital Computer Laboratory has expanded in a number of significant respects. In the fall of 1958 it moved into its new building. In the spring of 1959 an IBM 650 computer was installed in the space vacated in the Engineering Research Laboratory. In addition to work done and paid for by research contracts with outside agencies, the Illiac has also been used without charge for approximately 3350 hours in connection with unsponsored research by faculty members. The development and construction of the new very-high-speed computer, begun in 1957 and supported by funds provided by the Office of Naval Research and the Atomic Energy Commission, proceeded at a satisfactory rate. International recognition of the work of this Laboratory is evidenced by the prominent roles played by Professors Gillies, Metze, Muller, Poppelbaum, and Taub at the International Conference on Information Processing held at Paris in June 1959.

Electron Microscope Laboratory

The Electron Microscope Laboratory was fortunate to secure as its director a full-time electron microscoper, Dr. Rubin Borasky. Faculty members and graduate students in the life sciences, agronomy, ceramic engineering, chemistry, and other departments continued to use its facilities for their research. Expanded activity is anticipated for the immediate years ahead.

Glassblowing Laboratory

The Glassblowing Laboratory continued to provide facilities and equipment for research by faculty and graduate students for most areas in the physical and biological sciences. It appears desirable that this service be placed on a permanent recurring budgetary basis.

Illinois Historical Survey

The Illinois Historical Survey has continued to provide scholars with valuable sources of western history through its collection and cataloging of materials.

Natural Areas and Uncultivated Lands

The Committee on Natural Areas and Uncultivated Lands works to preserve and maintain the University's natural areas for use in a number of research projects by staff members and graduate students in botany, zoology, forestry, and other departments.

Photosynthesis Laboratory

The Photosynthesis Laboratory and the entire University suffered a great loss in Professor Robert Emerson's untimely death in a plane crash in February. Despite this tragedy, however, the Laboratory's investigation of the nature of photosynthesis has continued. The past year's work has resulted in the publication of eight articles in scientific journals and the acceptance for publication of seven more.

Physical Environment Unit

As in the past, the facilities of the Physical Environment Unit have been employed by students and staff in such areas as physical education, agricultural engineering, animal science, mechanical engineering, home economics, and health education.

Radiocarbon Laboratory

The Radiocarbon Laboratory has contributed to research projects conducted by faculty members and graduate students in such departments as agronomy, animal science, bacteriology, chemistry and dairy science. It has also offered instruction in the use of radioactive carbon and tritium for tracer purposes.

V. DIVISION OF THE GRADUATE COLLEGE AT THE CHICAGO PROFESSIONAL COLLEGES

(Report Prepared by Milan Novak, Associate Dean)

Outstanding achievement of the Division of the Graduate College at the Chicago Professional Colleges was the approval of a formal set of operating By-Laws. Included in them are provisions for quarterly meetings of the general faculty. With the realization of these objectives, a great deal of the unrest among the faculty has subsided. Attendance at the meetings has been good, and a fruitful exchange of ideas for the improvement of graduate work has been exercised. Four meetings of the general faculty were held.

A notable change in registration has occurred. An increase from 116 students in the fall quarter of 1957 to 151 students who registered in September of 1958 was experienced. Among these registrants, an appreciable increase of foreign students was noted. Approximately 17 per cent of the total registrants currently enrolled are foreign students. Many of the inherent problems with this group of students were, therefore, more apparent than previously and required a proportionally greater amount of administrative attention. Evaluation of transcripts required no small amount of concern, and experience has demonstrated the worth of a conservative admissions policy, rather than being faced with the more serious problems attendant on dismissal of the scholastically inadequate student. The establishment of a "double standard" has been zealously prevented.

Six meetings of the Executive Committee were held, at which the following numbers of faculty were approved:

Full Status	6
Master of Science Status	8
Limited Status	8

Seven new course proposals were approved, four of which are in the area of Public Health where no curriculum leading to a degree currently exists. The offerings are made in an attempt to supply the demands of Public Health authorities for courses of interest and professional benefit to Public Health personnel. It is anticipated that an initial course experience at the graduate level on a part-time basis by employed Public Health personnel may stimulate their eventual participation in a Public Health professional degree program at nearby schools, such as the University of Michigan or the University of Minnesota, utilizing the credits earned in courses offered here as transfer credit in their degree programs.

A total of 15 full-time annual fellowship awards were approved and 38 summer, or part-time, fellowships were granted. Stipends are derived from several industrial sources, United States Public Health Service and University fellowship funds. An active Fellowship Fund Search Committee has augmented the number of available fellowships from commercial sources. Supplementing these fellowships are newly activated United States Public Health Service "Trainee" fellowship programs in several departments, which allow the appointment of fellowship "trainees" who may conduct full-time graduate work.

The Executive Committee has initiated a systematic review of curricula currently existing and in operation since they were reorganized some 10 years ago. There are apparent needs for strengthening in certain areas, predominantly in those bordering on vocational or clinical subjects. It is anticipated that a more strict policy with respect to required basic science course work, to provide breadth, will be exercised.

Acquisition of new physical quarters brings to an end several years of persistent effort toward the goal of an appropriate suite of rooms exclusively for the Graduate College Division.

A summary of registrations in the various disciplines is presented in the table that follows.

REGISTRATION ACCORDING TO THE MAJOR FIELD OF STUDY AND DEGREES CONFERRED

						Graduate College Degrees Conferred June 12, 1959	
DEPARTMENTS						M.S.	Ph.D.
	SUMMER	FALL	WINTER	SPRING	TOTAL		
Anatomy	9	14	14	13	50	4	3
Biological Chemistry	26	26	26	25	103	1	3
Medicine		1	2	1	4		
Microbiology	10	14	12	11	47	3	1
Pathology	4	3		2	9	1	
Pharmacology	18	20	19	18	75	4	
Physiology	14	21	20	17	72	3	1
Physiology (Clinical Science)	4	3	3	3	13	3	
Surgery	4	3	2	2	11		
Total majoring in the medical sciences	89	105	98	92	384	19	8
Histology (Dental)	8	7	6	6	27	4	
Oral Pathology	1	2	2	2	7		
Oral Surgery	1	4	2	3	10	1	
Orthodontics	13	9	9	6	37	5	
Pedodontics	6	6	6	4	22	5	
Total majoring in the dental fields	29	28	25	21	103	15	
Chemistry (Pharmaceutical)	11	15	16	16	58	2	
Pharmacognosy		1	1	1	3		
Pharmacy	2	2	2	2	8		
Total majoring in the pharmacy fields	13	18	19	19	69	2	
GRAND TOTAL of Graduate College registrants and the degrees conferred	131	151	142	132	556	36	8

VI. SCIENTIFIC AND SCHOLARLY PUBLICATIONS

In addition to the annual Publications of the Faculty, the Graduate College sponsored the following publications by the University of Illinois Press:

The Illinois Studies Series

Books Published

Balduf: Obligatory and Facultative Insects in Rose Hips (BM)

Beer: The Emergence of the German Dye Industry (SS)

Harper: Economic Regulation of the Motor Trucking Industry (SS)

LeSage: Marcel Proust and His Literary Friends (LL)

Phillips: Little Business in the American Economy (SS)

Zimmerman and Becker: Melanoblasts and Melanocytes in Fetal Negro Skin (MM)

Books in Process

Beaty: *Middlemarch* from Notebook to Novel (LL)

Blair: Cumulative Voting in Illinois (SS)

Block: Separation of the Farm Bureau and the Extension Service (SS)

Frye: Schiller, 1759-1859 (LL)

Johnson: Wendell Wilkie and the Republican Party (SS)

Morgan: The American Species of Genus *Psaronius* (BM)

Non-Serial Publications

Books Published

Allen, ed.: Studies in Honor of T. W. Baldwin

Boatright, Flanagan, Downs: The Family Saga

Brown: Letters From a Texas Sheep Ranch

Graebner, ed.: The Enduring Lincoln

Harwell: Cities and Camps of the Confederate States

Hough: Geology of the Great Lakes

Kahane, Tietze: The Lingua Franca in the Levant

Karsh: Diary of a Strike

Kirk: Education of the Mentally Retarded

Levine: Industrial Relations in Postwar Japan

Lewis: Village Life in Northern India

McGregor: The Pool and Irving Villages

Paul: The Shores of America

Shattuck: Bulwer and Macready

Books in Process

Altick: Bibliography of Dissertations in Victorian Literature

Baldwin: The Literary Genetics of Shakespeare's Plays, 1592-1594

Committee on School Mathematics: High School Mathematics

Fletcher: The Intellectual Development of John Milton

Garner
and Wenar: The Mother-child Interaction in Psychosomatic Disorders

Harris: The Social Philosophy of Giovanni Gentile

Harris: (Transl.) The Genesis and Structure of Society, by Gentile

Hogrefe: The Sir Thomas More Circle

Hyneman: The Study of Politics

Mitterling: America in the Antarctic to 1840

Pool, ed.: Trends in Content Analysis

Proehl, ed.: Legal Problems of International Trade

Reynolds and Zweifach, eds.: The Microcirculation

Scott: Mexican Government in Transition

Wilson: Arnold Bennett and H. G. Wells

Winter: Beyond the Mountains of the Moon

Young: The Principles of Nutrition and the Digestive System

Illinois Journal of Mathematics

The Illinois Journal of Mathematics continued to publish learned articles by contributors from the United States and 10 foreign nations. Circulation was expanded, and now includes 251 domestic subscribers and 155 foreign subscribers.

VII. APPENDICES

TABLE I

GRADUATE FELLOWSHIP AND SCHOLARSHIP AWARDS

1958-1959

	FELLOWS					SCHOLARS
	Academic Year		1958 Summer Session			Academic Year
Department	Univ.	*Other	Univ.	*Other	Faculty	University
Accountancy	5	1				3
Aeronautical Engineering	1					1
Agricultural Economics	3	9				1
Agronomy	4	2	1			1
Animal Science & Animal Nutrition		2				
Anthropology	2					1
Architecture	1	1	1			1
Art	2		1		5	4
Astronomy						
Bacteriology	3	2	2	1		
Biological Sciences						
Biophysics	1					
Botany	1		2			2
Business	2	1				2
Business Education						
Ceramic Engineering		7				
Chemistry & Chemical Engineering	30	44	6	13	2	1
City Planning						
Civil Engineering	6	3	1			12
Classics	1				1	
Communications	1		1			
Dairy Science	1					
Digital Computer						
Economics	2	1				3
Education	6	12	3	4		13
Electrical Engineering	10	10				2
English	8		5		7	19
Entomology	2		1			1
Finance		1				4
Food Technology	1	5				1
French	2		1		2	1
Geography	2					
Geology	10	5	1	5		7
German	5		1			
History	13	4	2	1	1	5

---

* Industrial and Endowed.

Graduate Awards, Continued:

	FELLOWS					SCHOLARS
	Academic Year		1958 Summer Session			Academic Year
Department	Univ.	*Other	Univ.	*Other	Faculty	University
Home Economics		7				1
Horticulture	1	3				2
Journalism	2					5
Labor & Industrial Relations	1					11
Law						
Library Science	2	2				9
Management	1					3
Marketing		2			1	1
Mathematics	6	53	4	6	2	2
Mechanical Engineering	3	1	1			5
Mining & Metallurgical Engineering		2				
Music	13		1		2	19
Philosophy	5		1			4
Physical Education						1
Physics	5	11	1			2
Physiology	3					
Plant Pathology		1				
Political Science	6	2	1			7
Psychology	2	11	2			5
Social Sciences						2
Social Work		17				2
Sociology	1		1			2
Spanish	1	1	5		1	
Speech	4	1	2			5
Theoretical & Applied Mechanics	4					1
Veterinary Pathology & Hygiene						1
Zoology	2		2			
Chicago (Navy Pier)					2	
TOTAL	187	224	50	30	26	175

SPECIAL AWARDS:

Postdoctoral Fellows	
University	5
Industrial	3
Predoctoral Fellows	
Woodrow Wilson	16
NSF (Regular)	29

---

* Industrial and Endowed.

TABLE II

ENROLLMENT

1949-50 -- 1958-59

Year	Residence Men	 Women	Absent Under Leave	Total
1958-59	4601	1569	200	6370
1957-58	4169	1450	205	5824
1956-57	3990	1379	76	5445
1955-56	3743	1279	82	5104
1954-55	3570	1303	85	4958
1953-54	3693	1275	53	5021
1952-53	3876	1252	58	5186
1951-52	4293	1242	47	5582
1950-51	5034	1531	23	6588
1949-50	4242	1329	25	5596

TABLE III

ENROLLMENT BY DEPARTMENTS

DEPARTMENT	Students in Residence 1958-59	 1957-58	 1956-57
ARTS AND SCIENCES			
Astronomy	4	2	1
Bacteriology	34	38	40
Biological Sciences	10	12	12
Teaching of Biological Sciences and General Science	26	23	22
Botany	37	29	28
Chemistry	321	321	277
Chemical Engineering	41	40	44
Teaching of Chemistry	8	8	7
Classics	10	14	13
Teaching of Latin	1	1	2
English	208	202	161
Teaching of English	18	16	15
Entomology	43	34	37
French	27	29	23
Teaching of French	3	2	2
Geography	36	27	38
Geology	100	91	86
German	20	17	18
Teaching of German	2	0	0
History	124	123	105
Mathematics	177	164	135
Statistics	21	7	11
Teaching of Mathematics	73	44	21
Teaching of Mathematics and Physical Sciences	0	0	1
Philosophy	35	28	29
Physical Sciences	0	1	0
Teaching of Physical Sciences	3	3	1
Physiology	47	47	43
Political Science	53	45	46
Psychology	111	123	103
Social Science	20	13	11
Teaching of Social Studies	35	16	22
Sociology and Anthropology	50	52	55
Spanish and Italian	45	41	37
Teaching of Spanish	2	0	4
Speech	110	93	90
Speech Correction	23	24	33
Teaching of Speech	2	3	3
Zoology	75	60	62
	1955	1793	1638

	Students in Residence		
DEPARTMENT	1958-59	1957-58	1956-57
AGRICULTURE			
Agricultural Economics	72	60	72
Agricultural Education	19	17	11
Agricultural Engineering	16	15	15
Agronomy	90	79	70
Animal Science	48	47	46
Animal Nutrition	21	25	22
Dairy Science	36	38	30
Food Technology	34	35	44
Dairy Technology	12	8	9
Home Economics	54	53	45
Home Economics Education	14	45	68
Horticulture	27	23	25
Plant Pathology	24	22	21
	467	467	478
COMMERCE			
Accountancy	84	75	77
Business	37	24	23
Commercial Teaching	15	14	11
Economics	77	84	84
Finance	16	5	0
Management	42	39	34
Marketing	26	25	20
	297	266	249
EDUCATION	1308	1241	1283
Education of Deaf	1	0	2
Education of Mentally Handicapped Children	6	4	5
	1315	1245	1290
ENGINEERING			
Aeronautical Engineering	34	27	22
Ceramic Engineering	23	22	16
Civil Engineering	263	220	179
Electrical Engineering	232	175	188
Mechanical Engineering	109	88	74
Mining and Metallurgical Engineering	44	46	38
Physics	198	183	167
Teaching of Physics	2	1	0
Theoretical & Applied Mechanics	46	47	38
	951	809	722

DEPARTMENT	Students in Residence		
	1958-59	1957-58	1956-57
FINE AND APPLIED ARTS			
Architecture	31	36	46
Art	30	29	29
Art Education	15	14	13
Art History	4	4	8
Music	109	84	90
Music Education	186	193	183
Landscape Architecture	5	1	0
City Planning	10	11	18
	390	372	387
JOURNALISM AND COMMUNICATIONS			
Advertising	7	0	0
Journalism	29	43	40
Radio and Television	5	0	0
Television	7	4	6
	48	47	46
PHYSICAL EDUCATION			
Health Education	12	11	18
Physical Education	145	123	106
Recreation	28	26	28
	185	160	152
BIOPHYSICS	3	5	6 *
COMMUNICATIONS	30	28	18 **
INSTITUTE OF LABOR AND INDUSTRIAL RELATIONS	54	62	71
LAW	8	5	5
LIBRARY	200	195	190
NUCLEAR ENGINEERING	5	1	0
SOCIAL WORK	63	62	53
VETERINARY MEDICAL SCIENCE	32	30	16 ***

---

* In Physico-Chemical Biology

** In Mass Communications

*** In Veterinary Pathology and Hygiene

DEPARTMENT	Students in Residence 1958-59	1957-58	1956-57
UNCLASSIFIED	167	69	45
LEAVES OF ABSENCE	200	205	76
PROFESSIONAL ENGINEERS	0	3	3
	6370	5824	5445

[illegible]			[illegible]
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

TABLE IV

BACCALAUREATE OR FOREIGN ORIGINS OF GRADUATE STUDENTS

1958 - 1959

U. S. Institutions	Number of Students
Alabama Polytechnic Institute	11
Alcorn Agricultural and Mechanical College	16
Augustana College	39
Ball State Teachers College	12
Beloit College	13
Bradley University	34
Brigham Young University	13
Brooklyn College	24
Brown University	10
Butler University	10
Calvin College	10
Carthage College	14
Case Institute of Technology	10
The City College of the City of New York	20
Colorado Agricultural and Mechanical College	11
Columbia University	19
Cornell University	17
DePaul University	27
DePauw University	14
Eastern Illinois State College	172
Elmhurst College	11
Evansville College	11
Greenville College	29
Harvard University	12
Illinois College	18
Illinois Institute of Technology	18
Illinois State Normal University	169
Illinois Wesleyan University	38
Indiana State Teachers College	28
Indiana University	34
Iowa State College of Agriculture and Mechanic Arts	24
Kansas State College of Agriculture and Applied Science	24
Kent State University	11
Knox College	12
Lincoln University	11
Loyola University	17
Marquette University	12
Massachusetts Institute of Technology	30
Miami University	16
Michigan State University of Agriculture & Applied Science	25
Millikin University	31
Monmouth College	26

U. S. Institutions	Number of Students
MacMurray College	10
McKendree College	11
Murray State College	12
New York University	11
North Central College	14
North Texas State College	11
Northern Illinois State College	48
Northwestern University	53
Oberlin College	28
Ohio State University	21
Ohio University	14
Ohio Wesleyan University	14
Oklahoma Agricultural and Mechanical College	24
Olivet Nazarene College	25
Pennsylvania State University	26
Polytechnic Institute of Brooklyn	11
Purdue University	35
Quincy College	10
Roosevelt University	18
Rosary College	15
St. Ambrose College	10
Southern Illinois University	129
Southwest Missouri State College	15
Springfield College	10
Stanford University	10
State University of Iowa	14
Swarthmore College	11
Syracuse University	12
Tougaloo Southern Christian College	10
University of Arkansas	20
University of California	19
University of California (Los Angeles)	10
University of Chicago	27
University of Cincinnati	12
University of Colorado	14
University of Connecticut	10
University of Hawaii	14
University of Idaho	12
University of Illinois	1680
University of Kansas	22
University of Kentucky	24
University of Massachusetts	19
University of Michigan	33
University of Minnesota	27
University of Missouri	37
University of Nebraska	20
University of Notre Dame	24
University of Oklahoma	21
University of Pennsylvania	10

U. S. Institutions	Number of Students
University of Pittsburgh	10
University of Rochester	17
University of Tennessee	24
University of Texas	16
University of Utah	10
University of Washington	17
University of Wisconsin	45
U. S. Military Academy	30
U. S. Naval Academy	12
Valparaiso University	10
Washington University	30
Wayne University	12
Western Illinois State College	55
Western Michigan College of Education	11
Wheaton College	24
Other (Total from institutions with less than 10 students at the University of Illinois.)	1560
Subtotal	5673

Country	Number of Students
Canada	78
China - Formosa	92
Egypt	20
England	34
France	11
Germany	14
India	162
Japan	32
Korea	13
Mexico	12
Philippine Islands	10
Thailand	15
Turkey	12
Other (Total from countries with less than 10 students at the University of Illinois.)	192
Subtotal	697
GRAND TOTAL	6370

TABLE V

DEGREES CONFERRED

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1958-59	1957-58	1956-57	1958-59	1957-58	1956-57
Accountancy	8	12	1	11	9	8
Advertising	#	#	#	1	#	#
Aeronautical Engineering	3	0	0	3	7	9
Argicultural Economics	4	6	5	16	16	13
Agricultural Education	#	#	#	5	5	1
Agricultural Engineering	#	#	#	4	3	5
Agronomy	6	10	3	21	16	20
Animal Nutrition	4	4	2	0	0	2
Animal Science	3	4	3	5	9	15
Anthropology	0	0	#	1	1	1
Architectural Engineering	#	#	#	5	7	7
Art Education	#	#	#	5	4	4
Art History	#	#	#	2	1	2
Astronomy	0	0	#	1	1	1
Bacteriology	6	4	2	2	4	2
Biological Sciences	#	#	#	2	3	2
Biophysics	1	2	#	#	1	#
Botany	5	0	4	8	5	6
Business	4	2	5	#	#	#
Ceramic Engineering	2	3	0	7	6	7
Ceramics	0	1	0	0	0	0
Chemical Engineering	4	7	6	11	12	12
Chemistry	51	55	50	33	32	19
City Planning	#	#	#	2	7	0
Civil Engineering	11	9	6	81	79	60
Classical Philology	0	1	0	#	#	#
Clinical Psychology	*	*	*	*	*	1
Commercial Teaching	#	#	#	0	3	3
Communications	5	7	#**	#	#	#
Dairy Science	4	0	4	10	6	4
Dairy Technology	1	0	1	3	0	0
Economics	7	9	8	15	11	11
Education	13	9	6	6	9	10
Education of Deaf	#	#	#	1	0	0
Education of Mentally Handicapped Children	#	#	#	4	0	2
Electrical Engineering	13	15	10	58	58	54
English	12	12	8	41	27	24
Entomology	4	3	7	8	4	5

# Degree Not Offered
* Degree Discontinued
** See Mass Communications

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1958-59	1957-58	1956-57	1958-59	1957-58	1956-57
Finance	#	#	#	5	1	#
Food Technology	5	8	5	3	4	9
French	1	2	4	0	10	8
Geography	3	4	3	1	4	9
Geology	14	17	5	21	18	17
German	3	1	3	5	3	5
Greek	#	#	#	1	3	1
History	9	8	9	23	14	19
Health Education	#	#	#	4	6	10
Home Economics	#	#	#	10	9	7
Home Economics Education	#	#	#	4	12	6
Horticulture	2	4	1	3	3	7
Journalism	#	#	#	6	9	9
Labor and Industrial Relations	#	#	#	16	24	18
Latin	#	#	#	0	1	1
Library Science	0	3	3	71	74	52
Management	#	#	#	8	4	4
Marketing	#	#	#	3	7	3
Mass Communications	*	*	1	#	#	#
Mathematics	11	11	7	40	27	27
Mechanical Engineering	2	2	6	28	34	25
Metallurgical Engineering	4	3	1	10	8	7
Mining Engineering	0	0	0	1	3	3
Music Education	#	#	#	59	41	43
Musicology	0	1	1	#	#	#
Nuclear Engineering	#	#	#	3	#	#
Philosophy	1	4	1	7	5	2
Physical Education	4	0	5	38	28	30
Physico-Chemical Biology	*	*	1	#	#	#
Physics	12	21	13	44	42	31
Physiology	5	9	5	13	2	7
Plant Pathology	7	3	3	4	3	2
Political Science	6	1	4	12	12	7
Psychology	12	17	9	12	11	8
Radio and Television	#	#	#	2	#	#
Recreation	#	#	#	9	13	7
Sanitary Engineering	0	0	0	1	1	8
Social Sciences	#	#	#	4	3	5
Sociology	7	4	3	5	5	7
Spanish	3	1	0	11	7	10
Speech	8	10	12	18	10	14
Speech Correction	#	#	#	2	9	4
Statistics	0	0	0	7	2	1

# Degree Not Offered

* Degree Discontinued

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1958-59	1957-58	1956-57	1958-59	1957-58	1956-57
Teaching of Biol. Sci. and Gen. Sci.	#	#	#	7	10	10
Teaching of Chemistry	#	#	#	2	2	3
Teaching of English	#	#	#	1	3	6
Teaching of French	#	#	#	1	0	0
Teaching of Latin	#	#	#	1	0	2
Teaching of Mathematics	#	#	#	54	40	8
Teaching of Physics	#	#	#	1	0	0
Teaching of Social Studies	#	#	#	14	4	11
Teaching of Spanish	#	#	#	0	1	3
Teaching of Speech	#	#	#	3	0	2
Theoretical and Applied Mechanics	6	4	4	12	14	8
Veterinary Medical Science	1	0	#	9	3	#
Veterinary Pathology & Hygiene	*	*	1	*	1	1
Zoology	5	7	10	11	9	5
Subtotal	302	320	251	1002	905	802

PROFESSIONAL DEGREES

FIELD OF STUDY	1958-59	1957-58	1956-57
Master of Music	21	22	28
Master of Fine Arts in Painting and Graphics	10	6	11
Doctor of Education in Education	20	17	21
Music Education	1	6	1
Master of Education	311	271	269
Master of Social Work	25	15	18
Professional Engineers	*	3	3
Advanced Certificate in Education	23	13	18
Music Education	2	2	0
Doctor of the Science of Law	0	0	2
Master of Laws	2	2	2
Master of Television	1	0	3
Master of Architecture	6	15	9
Master of Accounting Science	1	#	#
Subtotal	423	372	385
TOTAL	1727	1597	1438

# Degree Not Offered
* Degree Discontinued

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1963-1964

ANNUAL REPORT

GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

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ANNUAL REPORT

GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

ADMINISTRATIVE STAFF

Herbert E. Carter, Acting Dean and Chairman, University Research Board

Helen M. Hay, Assistant to the Dean

Milan V. Novak, Associate Dean for the Graduate Division, Chicago Medical Center

Harold R. Snyder, Associate Dean and Secretary, University Research Board

Marvin Frankel, Associate Dean

Robert M. Sutton, Associate Dean

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EXECUTIVE COMMITTEE OF THE GRADUATE COLLEGE, 1963-64

HERBERT EDMUND CARTER, Chairman; Acting Dean of the Graduate College; Professor of Biochemistry and Head of the Department of Chemistry and Chemical Engineering; Chairman of the University Research Board

DANIEL ALPERT, Research Professor of Physics and Director of the Coordinated Science Laboratory

HARRY SAMUEL BROUDY, Professor of Philosophy of Education

JOHN FITZGERALD DUE, Professor of Economics and Chairman of the Department of Economics

RALPH TALCOTT FISHER, JR., Professor of History and Director of the Center for Russian Language and Area Studies

DENO JOHN GEANAKOPLOS, Professor of History and Associate Member of the Center for Advanced Study

W. SCOTT GOLDTHWAITE, Professor of Music

HERBERT S. GUTOWSKY, Professor of Physical Chemistry

EARL REECE LENG, Professor of Plant Breeding and Genetics

DAVID L. NANNEY, Professor of Zoology

MILAN VACLAV NOVAK, Associate Dean of the Graduate College for the Medical Center; Professor of Microbiology and Head of the Department of Microbiology

ROBERT WENTWORTH ROGERS, Professor of English and Head of the Department of English

O. BURR ROSS, Professor of Animal Science and Head of the Department of Animal Science

EUGENE FRANCIS SCOLES, Professor of Law

GILBERT YALE STEINER, Director and Professor in the Institute of Government and Public Affairs

GEORGE WARNER SWENSON, JR., Professor of Electrical Engineering and Research Professor of Astronomy

In Appreciation

FREDERICK THEODORE WALL

The Executive Committee of the Graduate College of the University of Illinois takes this occasion to express its grateful appreciation of your many contributions during the twenty-seven years you have served the University, and especially to recognize the achievements during your eight-year term as Dean.

The hallmark of your career is the encouragement of excellence in all aspects of graduate education and research, accomplished by the example of your own scholarly work as well as by the exercise of uncommonly sound judgment and critical insight.

Your status in the scientific and educational communities is suggested by your receiving the American Chemical Society Award in Pure Chemistry in 1945 and the University of Minnesota Outstanding Achievement Award in 1959, and by your election to the National Academy of Sciences in 1961. The University has gained much from the talents and activities which led to such recognition.

Your strong leadership of the Graduate College came at an exceptionally critical period in the evolution of graduate instruction and scholarly activity at the University. You served as a distinguished agent of the college faculty for the initiation and execution of our educational policy. Your recognition of the distinctive status of graduate students encouraged the enrollment of superior students; your support of a University-wide fellowship competition is regarded with admiration by other universities, as are the program of faculty summer fellowships and the Center for Advanced Study started under your guidance.

As Chairman of the University Research Board, you developed it into a unique and remarkably effective instrument for furthering the creative work of faculty and students. You aided the Digital Computer Laboratory in becoming a world center for such work, thereby enriching the graduate programs of a major portion of the University. You generated widespread confidence that the resources of the Research Board would be used to promote excellence.

We wish to add this expression of our thanks and admiration to those of your colleagues and students for your uncompromising support of graduate education. It is with a sense of deep loss that we view your departure from the University. We extend our very best wishes to you and your family for the years ahead.

I. THE ADMINISTRATION OF GRADUATE EDUCATION

A. Introduction

The Graduate College is chiefly concerned with the quality of instruction, facilities, and research guidance available to its students. With the spiraling trend in the number of students entering upon graduate work, it has become increasingly necessary to limit enrollment so as to maintain those high standards.

But enrollment restrictions, while creating new problems for the Graduate College, have also created new opportunities. The quality of students admitted this past year has been higher than ever before. The sense of urgency which prevails in graduate circles today is the result of a growing conviction that much of our hope for the nation's future depends upon what is accomplished here and at other similar institutions across our land.

B. Enrollment

A total of 9,280 persons registered in the Graduate College in 1963-64. This is a 9 percent increase over the 8,513 figure of a year ago, and nearly double the 4,958 student enrollment ten years ago in 1954-55. A detailed comparison of enrollment figures by department for a three-year period will be found in Table 1.

Applications for admission and the granting of permits to enter in the coming academic year, 1964-65, are running far ahead of a year ago, necessitating even more stringent screening on the part of the departments and the Graduate College. The increased body of applicants has caused a number of administrative problems, but should assure a student body of the highest possible quality.

C. Degrees Conferred

In 1963-64, the Graduate College conferred 2,392 degrees at the Urbana campus and a total of 53 degrees at Chicago Medical Center. A summary comparison of these degrees with those awarded during 1960-61 is given below:

Urbana	1963-64	1960-61
Ph.D.	441	378
Other doctoral degrees	39	33
A.M. and M.S.	1,287	1,126
Other master's degrees	572	370
Advanced Certificates	53	24
Urbana sub-total	2,392	1,931
Chicago Medical Center		
Ph.D.	15	12
M.S.	38	32
Chicago sub-total	53	44
GRAND TOTAL, Urbana and Chicago	2,445	1,975

1. Facts and Figures -- Degrees Awarded University of Illinois Compared with Other Institutions

The University of Illinois was *fourth in the nation* in producing the greatest number of *doctorates in all fields in the ten-year period 1949-50 through 1958-59*, according to a report recently issued by the United States Office of Education. Columbia University led with 5,483 degrees, followed by California, Wisconsin, and Illinois (with a total of 2,960 degrees).

2. Ranks Within the Fields of Study for Period 1949-50 through 1958-59:

Chemistry: University of Illinois, *first*.
Sciences, all fields of: University of Illinois, *third*.
Biological Sciences: University of Illinois, *fifth*.
Engineering: University of Illinois, *second*, following MIT.
Mathematics: University of Illinois, *sixth*.
Physical Sciences: University of Illinois, *third*.
Geology: University of Illinois, *sixth*.
Physics: University of Illinois, *fifth*.

In another comparison[*] of institutions ranked according to numbers of *doctorates awarded in all fields* by five-year blocks of time, the University of Illinois was *ninth* place in 1920-24; *sixth* place in the 1950-54 period; *third* place in the 1955-59 period and, following Columbia, *second* place in 1959-61 period.

3. Other Ranks for the 1959-61 period:

Chemistry: University of Illinois, *first* in the nation.
Physics: University of Illinois, *tied for fourth* place with Cornell.
Mathematics: University of Illinois, *fourth*, following University of California at Berkeley, New York University, and Harvard.
Biological Sciences: University of Illinois, *second*, following University of Wisconsin.
Natural Sciences: University of Illinois, *second*, following University of Chicago.

D. Courses, Curricula, and Graduate Faculty

One hundred and twenty-seven new and revised course proposals were considered by the Subcommittee on Courses and Curricula during this past year. Of these proposals, eighty new courses and forty revised courses were approved, five new courses were denied, and two proposals are still pending.

The Subcommittee on Graduate Faculty received eighty-two nominations for full standing and eighty-one for master's standing on the graduate faculty. Of these, sixty-seven were approved for full standing and seventy-five for master's standing.

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[*] These data were taken from "Doctorate Production in United States Universities, 1920-62," published by the National Academy of Sciences - National Research Council. Whereas the figures do not coincide in every case with those of the University of Illinois Graduate College, it is assumed that the comparative ranks of universities would be the same, regardless of method of tabulation. Ed.

During the past year, the Executive Committee approved a proposal of the Department of Urban Planning and Landscape Architecture that names of the degrees offered by that department be changed to the Master of Urban Planning and Master of Landscape Architecture (formerly Master of Science in City Planning and Master of Fine Arts in Landscape Architecture).

At the request of the Department of Psychology, the Committee approved the establishment of the degree of Master of Science in Psychology for students who do not write a master's thesis in that field.

E. Institutional Cooperation

1. Traveling Scholar Program. This university is one of the participating institutions in the CIC Traveling Scholar Program. The program is designed to enable graduate students to take advantage of special resources available at other institutions but not available on their own campuses. It is hoped that more students will take advantage of the special course offerings, research opportunities, unique laboratories, and library collections which the CIC program makes available to them.

2. Graduate Record Examination. The practice of requiring all new graduate students to take the Graduate Record Examination aptitude tests was continued during 1963-64. During the spring, an extensive analysis was undertaken on data obtained since the inception of this practice in the fall of 1960. The results of this study are now being evaluated and during the Fall Semester a decision will be made with respect to the continuance of the examination.

II. APPOINTMENTS AND AWARDS FOR GRADUATE STUDENTS

A. General

1. Fellows in Residence, 1963-64. During the academic year, more than 760 students held fellowships administered by the Graduate College, representing an increase of approximately seven percent over the previous year. Table 3 lists the many types of awards in force during the period and reports the number of persons who were recipients of each type. Twenty-seven percent of the graduate fellowships were supported by University funds, 17 percent by industries and foundations, and 56 percent by the federal government. Comparative data for 1962-63 were 30 percent supported by University funds, 22 percent by industries and foundations, and 48 percent by the federal government.

2. Applications for Aid, 1964-65. More than 6,500 applications for financial assistance were received for the 1964-65 year. Table 4 shows the number of persons who, by the spring of 1964, had applied for financial aid for 1964-65. The kinds of financial aid sought by students in the various areas of instruction are indicated and figures for the preceding year also are given. The total applications for all forms of aid were up 22 percent over the preceding year. The number of fellowship applications, about 21 percent higher than a year earlier, was between five and six times as great as the total number of fellowships available. As a result, extensive screening operations were required for selecting the recipients of awards.

B. University Fellowships

1. Selection of Fellows. As during recent years, each department was assigned

a maximum number of applicants it could recommend for University Fellowships and University Teaching Fellowships, this number being roughly proportional to the highest number of awards to students in the department during any one of the three preceding annual competitions. However, no department was assigned a quota less than three. The quota system produced a total of 966 applications recommended by departments as compared with 909 applications in 1962-63 and 868 during 1961-62.

Recommended applications were screened by one or another of the five subcommittees of the Graduate College Fellowship Committee: I, New Students in Pure Physical and Biological Sciences (Professor R. S. Juvet, Chairman); II, New Students in Applied Physical and Biological Sciences (Professor R. W. Touchberry, Chairman); III, New Students in Education, Pure and Applied Arts, and Humanities (Professor T. E. Metcalf, Chairman); IV, New Students in Pure and Applied Social Sciences (Professor H. C. Triandis, Chairman); and V, Old Students (Professor H. S. Ducoff, Chairman). 1/

As in previous years, the final screening of applications in the University Fellowship competition was made by the Graduate College Fellowship Committee, during 1963-64 composed of:

H. P. Broquist	Marvin Frankel, Chairman
Murray Edelman	J. R. Frey
W. S. Goldthwaite	D. E. Mapother
G. R. Grice	D. L. Nanney
H. V. Malmstadt	M. E. Van Valkenburg

2. Number and Distribution of Fellowship Awards. A total of 325 University Fellowships (including Teaching Fellowships) were awarded to students for 1964-65. The distribution of these awards among the various departments of the University is reported in Table 5. In determining the total number of awards to be made, it is necessary that the number of acceptances and declinations be anticipated approximately. This procedure helps to insure a balance between the resources available for fellowship support and the claims against them. The acceptance rate for 1964-65 was 92 percent for students already on the campus and 45 percent for new students. The rate over-all was about 61.5 percent. This figure exceeded the corresponding ones for the preceding two years, both at 57.5 percent, and was appreciably above the 1961-62 rate of 54 percent. The rising acceptance rate doubtless is associated with the increase in the numbers of students seeking a graduate education and the intensifying competition among them for financial aid. The enhanced attractiveness of the University Fellowship, described below, also appears to be a factor.

3. Changes in the University Fellowship Program. a. Beginning in 1964-65, the stipend of the University Fellowship will rise from $1,500 to $1,800 for the academic year and from $1,875 to $2,250 for the academic year plus the summer session. These increases are in line with stipend increases that have recently taken place for other categories of awards, such as the Woodrow Wilson Fellowships and some types of federally-supported fellowships. They should ease somewhat the financial pressures faced by many fellowship recipients and so enable them to pursue their studies more fully and effectively. Equally important, the increases should help appreciably to sustain and extend the ability of our graduate depart-

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1/ "Old" students are those previously registered in the Graduate College of the University of Illinois. "New" students are those not previously registered in the Graduate College.

ments to attract highly qualified and promising students.

b. A new category of awards under the title "Fellowship in the Creative and Performing Arts" was introduced, and seven awards made for 1964-65. The new program resulted from a growing recognition that the traditional standards of scholarship such as are emphasized in the selection of University Fellows are not always well-suited for measuring achievement in the arts. Hence, the new program gives relatively greater emphasis to creative achievement and promise in the selection of awardees. Students majoring in any of the following areas are eligible to compete for one of these awards: Architectural Design; Painting and Printmaking, Advertising Design and Industrial Design; Landscape Architecture; Dance; Piano, Organ and Harpsichord, Voice, Strings, Winds, Composition; Theatre. Departmental nominations for the new awards are reviewed by the subcommittee (of the Graduate College Fellowship Committee) in Education, Pure and Applied Arts, and Humanities. It, in turn, makes recommendations directly to the Dean of the Graduate College.

4. Illinois College Fellowships. Under this program, which was begun in 1960-61, each four-year private college in the state of Illinois which awarded baccalaureate degrees to twelve or more persons who subsequently received doctoral degrees from the University during the past twenty years was invited to nominate one of its outstanding seniors for a College Fellowship. Eight colleges qualified for these awards, and all nominated candidates who were approved by the departments in which they wished to study. Seven of the eight candidates accepted College Fellowships for 1964-65.

Four-year colleges in the state which did not qualify under the terms of this program were again invited to nominate a candidate for a tuition and fee waiver. The Graduate College continues to receive favorable responses to these announcements, and it is hoped that the program will bring excellent students to the University as well as contribute to cordial relations with other institutions in Illinois.

5. Summer Fellowships for Teaching Assistants. To encourage more students to become college teachers, and to give special consideration to the graduate assistant who is gaining experience as a college teacher, the Graduate College each year awards a substantial number of Summer Fellowships for Teaching Assistants. Graduate students who have held teaching assistantships for at least half-time during the preceding academic year, who have earned not less than two units during that period, and who have demonstrated superior scholarship are eligible to apply. Eighty awards, each carrying a stipend of $450, were made for the summer of 1964.

6. University Tuition and Fee Waivers. The number of applicants recommended by the many departments for University Fellowships is much in excess of the number of fellowships available, and as a result many excellent applicants are unsuccessful in the competition. Not all of these students can be offered assistantships, and if no other form of support were available, many of them would be unable to attend the University. For several years the Graduate College has dealt with this problem by offering these students Tuition and Fee Waivers. Approximately 30 percent of such offers for 1964-65 were accepted.

Two separate Tuition and Fee Waiver competitions, distinct from the fellowship competition, were held in the Spring of 1964. Recommendations for these awards were made to the Graduate College by the departments. The applicants, although not required to meet standards quite so high as those established for fellowship applicants, were expected to have records showing significant academic achievement and promise. As a result of these competitions, nearly 275 waivers were offered.

The Tuition and Fee Waiver is a critical element in the Graduate College's financial aid program. Though of nominal amount in dollar terms, it often affects decisively the ability of well-qualified students to initiate or continue work towards a higher degree.

C. Fellowships Supported by Outside Agencies

1. Types of Fellowships Awarded. The main categories of fellowships supported by outside agencies but administered through the University are listed in Table 6, with data on the number of awards given for both 1964-65 and 1963-64. Valid comparisons for the USPHS Predoctoral Fellowships and Traineeships are not possible because of incomplete information. Noteworthy changes are the declines from 1963-64 in the numbers of NSF Cooperative and Graduate awards, the rise in the number of Science Faculty awards, and the build-up in the NASA program which is now entering its second year.

The slight drop in the number of National Defense Education Act Title IV awards reflects both the expiration of those fellowship allotments made three years ago, to run for three years, and the provision of new allotments, not always to support the same programs, to run for an additional three years. New allotments include three fellowships in anthropology, two in comparative literature, two in educational psychology, three in physiology and biophysics, and two in theoretical and applied mechanics.

Also noteworthy is the large number of NSF Engineering Traineeships received -- the second highest among all schools in the nation -- for the first year of this new program. The primary intent of the program, according to the National Science Foundation, is to accelerate the output of graduate students with advanced degrees in engineering, and thereby to help meet the nation's future needs in this area for professional manpower. The size of the program on this campus is expected to rise over the next year or two as the traineeships already in force, some of which may continue for two to four years, are supplemented by additional awards. Comparative data on NSF Engineering Traineeship awards to the University of Illinois and twelve other major universities are presented in Table 8. The table also gives comparative data for the past three years for the NSF Graduate and Cooperative awards.

The distribution by department of all major categories of fellowship awards for 1964-65 -- University, Industrial and Endowed, and the several types of Federal awards -- is summarized in Table 5.

D. Sources and Distribution of Financial Aid

Over the past ten years, fellowship support from University funds has more than tripled, rising from $116,000 in 1954-55 to over $390,000 in 1963-64. That from industrial and endowed sources more than doubled, moving up from approximately $105,000 to $266,000. Over this same period, support from federal funds administered through the University rose from an almost negligible level to more than $1.5 million. As a result, the percent of total support from University funds has fallen by half, from 50 percent to about 25 percent. Close to 60 percent of the total fellowship support provided to graduate students at the University now comes from federal sources. These rather dramatic changes are summarized in Table 9.

The distribution of financial aid to graduate students in the several major areas of study is presented in Table 10. Aid in the form of both fellowships and assistantships is covered. Because of the volume of federal support and the emphasis of federal programs, fellowship aid per enrolled student is, as one might expect, highest in the biological and physical sciences. The dearth of outside support, federal and other, in education and in the arts accounts for the markedly contrasting situation in those areas. On a per student basis, only about one-fourth as much fellowship aid is available in these areas as in the sciences. Assistantship aid is less unevenly distributed, and it is interesting to note that here the humanities are almost on par with the physical sciences. Again, however, education and the arts, along with the social sciences, stand near the bottom of the scale. A comparison on the basis of fellowship and assistantship aid combined shows the biological sciences, the physical sciences, engineering and the humanities to be grouped fairly closely together at the top, with the social sciences, education and the arts much below them. It will be seen that, for all areas together, dollar support through assistantships is almost four times as great as through fellowships.

E. Fellowship Subventions to Departments

Effective in September, 1962, the Graduate College adopted a policy of granting the sum of $500 per fellow per year to the major department of each University Fellow. Similar grants are made to the major departments in which students hold NASA, NSF Cooperative and Graduate, Woodrow Wilson, NDEA Title IV, and USPHS Predoctoral Fellowships. The arrangement will be extended in 1964-65 to cover as well the new NSF Engineering Traineeships. Funds for subventions have come from the University Research Board and from the institutional allowances provided to the University by the agencies which sponsor the awards listed above. Departments are permitted to use subvention funds for any of a wide variety of purposes connected with research and advanced instruction. Table 11 reports amounts granted to various departments as fellowship subventions during 1963-64.

III. SUPPORT OF RESEARCH

A. The Center for Advanced Study

The Center for Advanced Study, activated in 1959, continues to be a successful means for recognizing and encouraging research, creative achievement, and scholarship by the University's outstanding professors.

1. New Members. Professor Sol Spiegelman, professor of microbiology, has been appointed to the Center for a five-year term beginning September 1, 1964, joining Professors John Bardeen, electrical engineering and physics; Joseph Doob, mathematics; Harry Drickamer, chemistry and chemical engineering; Julian Steward, anthropology, and Alexander Turyn, classics. Professor Spiegelman is one of the outstanding investigators in modern biology. His early work on induced enzymes was instrumental in establishing the modern approach to the control of enzyme formation. His more recent discovery and demonstration of messenger RNA has caught the imagination of biologists of all countries and has led to creative studies of the mechanisms whereby genetic information of DNA is "transcribed" into RNA and "translated" into specific proteins. From these basic studies, Professor Spiegelman is moving into the more difficult problems of morphogenesis and development. He has exerted a pre-eminent influence over a large area of biology. He has received several recognitions and awards, including the Pasteur Award of the Illinois Society of Microbiologists in 1963 and selection as one of two United States biologists invited by the Pope to attend an international conference in the Vatican in 1961. He is a member of many scientific societies and has served on several committees

of the National Institutes of Health. He recently delivered the Jesup Lectures at Columbia University, an honor bestowed on a select group of scholars.

Renewals. Three of the four scholars appointed as first members of the Center at its inception, Professors John Bardeen, Joseph L. Doob, and Julian H. Steward, have been reappointed for a second five-year term as full members, beginning September, 1964. The fourth, Professor Reynold C. Fuson, chemistry, retired from the University in September, 1963.

2. Associate Members, 1963-64. Eleven scholars were named to associate membership in 1963-64. They were Samuel Adler, artist; Bei-tse Chao, professor of mechanical and industrial engineering; Deno J. Geanakoplos, professor of history; William J. Hall, professor of civil engineering; Donald R. Hodgman, professor of economics; J. Robert Kelly, professor of music; Sherman Paul, professor of English; Charles P. Slichter, professor of physics; Philip A. Wadsworth, professor of French; John H. Walter, professor of mathematics, and Frederick L. Will, professor of philosophy. More explicit descriptions of their particular fields of interest will be found in the Annual Report for 1962-63, and in the brochure, "The Center for Advanced Study."

3. Associate Members, 1964-65. Appointment of eleven associate members for 1964-65 was recommended by the Executive Committee of the Center after careful consideration of all applications.

Professor Alfredo Ang, of the Department of Civil Engineering, was appointed for the year to develop basic mathematical approaches to general behavioral theories of non-linear solids, including hardening plasticity and thermoplasticity. Professor Arthur E. Barker, of the Department of English, has been appointed for the first semester to complete a study of the theological content and the psychological, ethical and poetic implications of John Milton's theory of religious experience. Professor Margaret Chandler, of the Department of Sociology, Chicago Undergraduate Division, has been appointed for the first semester to make a statistical analysis and interpretation of research data being collected currently in Japan concerning Japanese industry and industrial management. Professor Evelyn Frank, of the Department of Mathematics, Chicago Undergraduate Division, has been appointed second semester to prepare a scholarly treatise on numerical continued fractions. Professor Georgiana Jagiello, of the Department of Medicine, Chicago, has been appointed for the year to study meiotic divisions of the human spermatocyte and oocyte in normal and pathological states. Professor J. Robert Kelly, of the School of Music, has been given an extension for the first semester to complete an opera to be entitled "The White Gods," based on the conquest of Aztec, Mexico, by Cortez. Professor David Lazarus, of the Department of Physics, has been appointed for the year to study the processes surrounding the formation and motion of point defects in solids with particular emphasis on their role in diffusion studies, nuclear magnetic resonance, internal friction and microvolt potentiometry. Professor Lee A. Rubel, of the Department of Mathematics, has been appointed for the first semester to study the Riemann Hypothesis, and to attempt to generalize the Nevanlinna theory of meromorphic functions, one of the major tools in mathematical analysis. Professor Sundaram Seshu, of the Department of Electrical Engineering and Coordinated Sciences Laboratory, has been appointed for the year to carry on research in the fields of self-repairing machines and sequential machines. Professor Michio Suzuki, of the Department of Mathematics, has been appointed for the first semester to carry on studies aimed at the ultimate goal of classifying all the finite single groups. Professor Nelson Wax, of the Department of Electrical Engineering and the Coordinated Sciences Laboratory, has been appointed for the year to study the theory of driven non-linear oscillators, and to complete a study of asymptotic coding bounds and decipherability in codes. In addition to those named above, Professor Donald R. Hodgman will serve as an associate member for the final year of a two-year appointment.

B. Faculty Summer Fellowships

This program, which was initiated by the University Research Board in 1958, continues to be very attractive to younger members of the faculty. It provides a small, tax-exempt stipend which permits the recipient to devote full time to scholarly endeavors during the summer months. During 1963-64, eighty-nine applications were received, fifteen from the Chicago Undergraduate Division, and seventy-four from the Urbana campus. A total of fifty-two awards was offered for the summer of 1964. Table 7 reports the distribution of awards by departments since the program was begun.

Although the University Research Board has substantially increased its support of this program over recent years, the number of meritorious proposals still exceeds the number of available awards. The existence of the program increases the attractiveness of Illinois as a university where younger faculty members are encouraged in creative scholarship and productive research. Additional funds are needed for its further expansion.

Faculty Summer Fellowship Committee:

W. F. Doolittle
Van Miller
P. M. Mitchell
Robert Ornstein
G. J. Thomas
S. P. Wyatt
Royall Brandis, Chairman

C. University Research Board

1. Appropriations Made. During the period July 1, 1963 through June 30, 1964, 305 requests by members of the faculty were placed before the University Research Board. The appropriations made are shown in Table 12. In the tabulation, summaries are given for the seven major categories, each of which is presented in detail in the body of the table. The totals for the seven major categories are as follows:

University Research Board Appropriations 1963-64

General University Purposes	$ 501,166
Humanities and the Arts	90,473
Social Sciences	154,676
Education	2,030
Biological Sciences	194,195
Physical Sciences	314,556
Chicago Undergraduate Division	12,130
Total	$1,269,226

In general, the major trends of recent years continue. The total appropriation actually made for General University Purposes is approximately $145,000 lower than in the year ending June 30, 1963, but only because a substantial portion of the funds needed for the operation of the fellowship programs during the year 1964-65 will be appropriated during that year, whereas in the past such funds have been provided in advance. Principally because of the deferral of part of the fellowship funds, it was possible to increase the appropriations in behalf of individual faculty members from $565,034 during the year ending June 30, 1963 to $768,060 during the year ending June 30, 1964. The increase was shared by all the major areas of the University except the College of Education and the Chicago Undergraduate Division, both of which received appropriations lower than those of the preceding year. The substantial increases to the biological sciences and to the physical sciences resulted largely from the needs for scientific equipment for new programs of research, including those of new staff members, whereas those in the humanities and arts and the social sciences reflect increased appropriations for the employment of research assistants.

The membership of the University Research Board during 1963-64 was as follows:

H. E. Carter, Chairman
H. W. Hake
R. K. Mautz
A. V. Nalbandov
N. M. Newmark
M. V. Novak
S. Paul
C. P. Slichter
H. R. Snyder, Secretary
S. Spiegelman
N. Wax

2. Review of Applications for Research Grants and Contracts and of Gifts for Research. The number of applications and the amounts sought by faculty members in proposals to outside agencies continue to increase as the University, and particularly the Graduate College, continues to grow. In such proposals, research support is requested for periods ranging from one year to as many as five years, and many requests are submitted from six months to a year before the initial funding of the successful proposals. Thus, much of the research now in progress is supported by grants and contracts made in response to applications submitted during 1963, 1962, and even earlier.

Table 13A shows a statistical summary of applications made during the period July 1, 1963 to June 30, 1964, and the status of those applications as of July 1, 1964. As would be expected from the time requirement for action by the agencies to which the proposals are addressed, almost half (411 of 917) of the applications have not yet been acted upon and are listed as pending, and these include well over half the total amount of funds requested during the year. The amounts granted as of July 1, 1964 (almost $15,000,000) are approximately half the amounts requested in the proposals that have been acted upon, and it is entirely possible that the still-pending proposals will also bring grants of half or more of the amounts requested in them.

Table 13B presents statistical information on the proposals submitted during the preceding fiscal year (July 1, 1962 - June 30, 1963) and the status of those applications as of July 1, 1964. Only thirteen of the 864 proposals submitted during that year remain in the pending category. Nearly three-fourths (640 of the 864) of the proposals received favorable action, and only about one-fourth were unsuccessful. The total amount granted, slightly over $28,000,000, corresponds to about 80 percent of the amount requested in the successful proposals, and is the largest such total for any year to date.

The grants made on the basis of the proposals initiated during the years ending June 30, 1963 and June 30, 1964 augur well for continuing vigorous research programs in most areas of the University. Nevertheless, great effort will be needed to provide internal support for research and creative work in the humanities and the arts to provide initial support for young staff members just beginning work in the sciences, to support mature scholars in various fields who join the staff after beginning their careers at other centers, and to support entirely new programs of research by present staff members.

D. University Patent Committee

The Patent Subcommittee of the University Research Board received during the past year from University staff members forty-three disclosures of potentially patentable inventions. Most of these inventions were submitted to the University of Illinois Foundation for further study.

The Patent Committee recommended the following action with reference to the rights of the University on inventions received this year:

One -- 15 percent net proceeds to the inventor;
Seven -- released to the inventors;
Six -- released to agencies outside the University sponsoring the investigation, usually the United States Government; and
Fourteen -- released to the University of Illinois Foundation for further study and possible patent application.

Several other cases were considered by the Committee:

Seven -- were closed because, in the opinion of the Patent Committee, they did not constitute patentable inventions;
Seven -- are under study at the present time by the University of Illinois Foundation, which will report back to the Committee at a later date; and
One -- has been recently received and is under consideration by the Patent Committee.

Members of the Patent Committee for 1963-64 included:

R. J. Maurer, Chairman
J. C. Colvin
J. J. Costello
R. T. Milner
J. R. Pasta
H. R. Snyder
C. C. De Long, Secretary

E. Institutional Grants

The National Science Foundation Institutional Grant of $75,000 made to the University was assigned to the Center for Advanced Study for use in supporting the appointments of associate members and members, as well as those of research assistants and associates working with the members.

The University also received the sum of $2,500 per fellow in conjunction with the National Defense Education Act Fellowships, certain Office of Education Fellowships, United States Public Health Service Fellowships, and National Science Foundation Faculty Fellowships; the sum of $2,500 for each National Science Foundation Cooperative Fellowship; and the sum of $2,500 for each National Science Foundation National Fellowship. Parts of these grants have been assigned to the Graduate College for allocation directly to departments, for partial support of the fellowship subvention program, and for other purposes. A summary of the receipts and allocations of institutional grant funds appears in Table 14.

F. Associated Research and Service Enterprises

1. Digital Computer Laboratory. The Digital Computer Laboratory has made substantial progress in its program of expansion, both in building and in equipment, and the year has been marked by further growth of its instructional, research, and service activities. Construction of the first addition to the Laboratory building is virtually complete, and a grant of $483,500 was made by the National Science Foundation in support of the second addition. The plans for the second addition are in a preliminary stage.

ILLIAC II is now in two-shift operation in preparation for an increase in service load expected in the fall of 1964. Present emphasis continues on the attachment of peripheral input/output equipment to the machine. A laboratory-designed 32,000-word drum backup store has been in operation since October 1963. An additional 32,000 words of drum storage should be available by the fall of 1964. An IBM 1401 peripheral computer connected on-line to ILLIAC II has provided card, printer, and magnetic tape facilities since the early summer of 1963. The first of four independently programmed magnetic tape channels has been in operation since early 1964. The remaining tape channels and the IBM 1301 disk channels (June 1964) are now in various stages of construction. In addition to assistance from the University, ILLIAC II has received support from the Atomic Energy Commission, the Office of Naval Research, the National Science Foundation and from International Business Machines Corporation, who has donated a great deal of equipment for attachment to ILLIAC II.

Enrollment in courses taught by members of the Laboratory staff has continued to increase. In particular, the enrollment in Mathematics 195, the introductory course, has grown to 1061. During the year, 69 graduate assistants were employed in the Laboratory, most of whom were also registered as Ph.D. candidates engaged in thesis research with members of the staff. The staff of the Laboratory has grown from 185 individuals in June, 1963 to 249 in June, 1964. Much of the research carried on by members of the staff has been concerned with the completion of ILLIAC II and design of ILLIAC III. Programs on computer circuits, switching theory, automatic analysis of extensive data (pattern recognition), numerical analysis, and efficient methods for using computers continue to make important progress.

The Illinois Pattern Recognition Computer (ILLIAC III), an all-digital processor for visual information, is under construction at the Digital Computer Laboratory. This visual recognition digital computer is designed for automatic scanning and concommitant numerical analysis of massive amounts of relatively homogeneous visual data. The design is an outgrowth of studies of a computer system capable of scanning, measuring and analyzing in excess of 10^6 bubble-chamber negatives a year. Engineering design of the high speed oscilloscopic scanners, for rapid ingestion of photographic information digitized on a black-white raster, is largely complete. Construction of a 35 mm scanning system and two monitoring stations is well under way. In like manner, the engineering design of the Pattern Articulation Unit (PAU), the unique visual data processor of the computer, is nearing completion. Construction of the first half of the unit is continuing. A preliminary manual of the computer, illustrating the full instruction set of the machine, slated for late summer 1964, will be available to all prospective users.

The Circuit Research Group concentrated its efforts on nanosecond circuits coupled by signals on transmission lines and also by light-pulses. In the former area, a very high speed amplifier consisting of two coupled lines and a tunnel diode in the linear mode allows buffering for a gamut of input impedances: This leads to the use of hot electron diodes as logic elements at its input. The coupling using light-pulses uses glass fibers connected between GaAs lamps and photodiodes. Due to the low efficiency of the source, a current amplifier with a gain of 10^4 must be inserted; the over-all rise- and fall-times are less than ten nanoseconds.

The IBM 7094-1401 system is being utilized heavily, with over 150,000 individual runs being made in the period from July 1, 1963 to May 31, 1964. Of the total operational time (6,017 hours) about one-twelfth (400 hours) was used for class problems, about one-fourth (1,355 hours) was used for thesis research, and over one-half (3,377 hours) was used for unsupported non-thesis research by staff members for many departments of the University. Indicative of the increased usage of the service facilities is the expansion from 1,643 hours to 4,244 hours of operational time during the eight months from October 1, 1963 to May 31, 1964 over the same period a year earlier. It was during this period that the IBM 7090 system was updated to an IBM 7094 system substantially increasing the capacity. This was supported, in part, by a grant of $375,000 from the National Science Foundation.

In February of 1964, Professor A. H. Taub, Head of the Laboratory for four years, resigned to take over as Head of the computer facilities at Berkeley, California. He was succeeded on May 1 by Professor John R. Pasta. In view of the increasing complexity and extent of the operations, Professor James N. Snyder will become Associate Head of the Laboratory on September 1, 1964.

2. Committee on Natural Areas. This Committee has supervised the maintenance, as in past years, of the University-owned Trelease Woods, Trelease Grassland Tract, Brownfield Woods, a research area in Allerton Park, Volo and Wauconda Bogs, and certain waylands along the railroad east of Urbana. These areas are used extensively in both teaching and research in Agronomy, Botany, City Planning and Landscape Architecture, Entomology, Forestry, Recreation and Municipal Park Administration, and Zoology. Perhaps a thousand students visit the area each year. As an example of the use of the areas for research, one project, concerned with measuring weekly, monthly, and annual fluctuations in populations of animals, has been carried on continuously at Trelease Woods since 1933.

Formerly designated the Natural Areas and Uncultivated Lands Committee, the group has been functioning since May 1 under its new name, Committee on Natural Areas. Members included:

S. C. Kendeigh, Chairman
L. C. Bliss
W. R. Horsfall
J. A. Jackobs
G. N. Jones
R. T. Odell
H. H. Shoemaker
J. N. Spaeth

3. Physical Environment Unit. During the year, the following divisions of the University made use of the facilities: Health and Safety Education, Home Economics, Institute of Aviation, Mechanical and Industrial Engineering, Psychology, Physiology and Biophysics, and Physical Education for Men. The use involved: five research projects; three class demonstrations, four class experiments; one seminar; one laboratory investigation; five Ph.D. theses; two master's theses; one undergraduate thesis; twenty-nine medical examinations. The facilities were also used for instrument calibration. Modifications and additions to the Unit plant have included: (1) construction of a cubicle equipped with baffles and speed-controlled fans to give a range, 25 to 70 fpm, of horizontal air velocities across subjects seated in the Buffalo physiological balance in Laboratory Room 124; (2) purchase of

two 5 amp. and two 10 amp. Variac Auto-transformers; (3) replacement of light-duty switch panel in Laboratory Room 124 with new heavy-duty, 12-circuit switch panel for all electrical circuits; (4) rebuilding of thermocouple harnesses H.Ec. No. 5, H.Ec. No. 7, H.Ec. No. 8, and H.Ec. No. 9; (5) overhaul and recalibration of anemotherm air velocity meter.

The Graduate College wishes to express appreciation to Professor Fahnestock, who for many years played a major role in the development of the Unit. On September 1, Dr. Bruce Hertig will become Director of the Physical Environment Unit, with joint appointments in physiology and mechanical engineering.

Physical Environment Unit Committee members for 1963-64 were:

M. K. Fahnestock, Chairman
R. S. Engelbrecht
L. G. Humphreys
H. H. Korst
A. L. Nalbandov
F. Sargent II

4. Radiation Hazards. 1963-64 saw the continued expansion of the use of radiation sources and radioactive materials. A total source strength of almost 9,000 millicuries was distributed among twenty-one departments in 489 orders. Of this total, 1,800 millicuries, representing sixty-five orders, were produced in the nuclear reactor.

The completion of Turner Hall and Phase II of the Physics Building brought the number of rooms on the active radiation survey list to 170. The number of film badge monitors in use has increased to 263.

No serious spills occurred this year, although two minor equipment explosions caused considerable concern until the radioactive hazard was evaluated.

The health physics staff is the same as last year, two full-time health physicists and one full-time technician.

Members of the Radiation Hazards Committee for 1963-64 were:

A. O. Hanson, Chairman
J. S. Allen (First Semester)
M. K. Brussel (Second Semester)
H. S. Ducoff
L. E. Elliott
J. P. Hummel
R. F. Nystrom
J. J. Steerman
O. S. Walters

5. Radiocarbon Laboratory. Facilities of the Radiocarbon Laboratory were used for research projects by twenty-five persons from nine University departments or divisions. In addition, major research projects of the Laboratory staff during the year have included: (1) structural studies of the polysaccharides from Aerobacter derogenes, strain A 3, with the isolation from the partial hydrolysates of the polysaccharide of cellobiose, a glucuronic acid-fucose aldobiuronic acid and a tetrasaccharide containing both of the disaccharide moieties; (2) preliminary investigation of the biosynthesis of polysaccharides using various nucleoside triphosphates as activators for glucose and mannose; (3) preparation of uniformly labeled tritium compounds by tritioboration procedures; (4) study of the mechanism of isomerization of organoboranes; and (5) synthesis of tritiated compounds by the isotopic exchange reaction of organoboranes with tritium gas. Two outside grants have helped to support the research; in addition, two grants-in-aid totaling about $5,000 were given by the Upjohn Company and Abbott Laboratories. The staff of the

Laboratory also has served in advisory capacities on carbon-14 and tritium problems and techniques for University faculty and students and for visitors from laboratories in the United States and foreign countries.

6. Illinois Historical Survey. The Illinois Historical Survey continues its program of collecting and calendaring materials relating to the history of Illinois and the Middle West during the 18th and 19th centuries. This past year, the Survey has been given a considerable number of books and manuscripts, particularly from members of the Department of History. Among the many acquisitions are transcripts of Civil War letters found in the collection of Albert H. Lybyer papers. These were received from the University archivist.

Calendaring and indexing of the Randolph County Records series were brought to a conclusion this year. These records along with the unpublished manuscripts from the French and British archives provide a rich source for the preparation of dissertations and for documentary publication in the years ahead.

An archivist for the University was appointed in September, 1963. His progress in less than a year has been highly satisfactory.

Mrs. Marguerite J. Pease, Director of the Survey since 1958, will retire from her position August 31. For nine years prior to her appointment as director, she served as editor at the Survey. In her years of service, Mrs. Pease has done pioneer work in writing descriptive guides to the Survey's manuscript and newspaper holdings. She has also contributed significantly to the identification, calendaring and cataloguing of key documents and correspondence relating to the early history of Illinois.

The new director of the Illinois Historical Survey, starting September 1, will be Robert M. Sutton, Associate Dean of the Graduate College and professor of history.

7. Water Resources Center. The University of Illinois Water Resources Center was established in October, 1963 as a unit of the Graduate College. The purpose of the Center is to coordinate existing research and to serve as a focal point for interdisciplinary activities related to water resources.

In addition to an Executive Committee (listed below), the Center has a Technical Advisory Committee with representatives from eight departments. Dr. J. P. Murtha, associate professor of civil engineering, was appointed Director of the Center in February, 1964.

During the spring semester, considerable effort was devoted to collecting information on existing research related to water resources. A file of research project descriptions has been completed. Forty-two research projects in this area are in progress.

A brochure describing water resources activities at the University has been prepared and is in the process of publication.

One joint meeting of the Executive and Technical Advisory Committees was held April 2, 1964. The purpose of this meeting was to advise committee members of matters affecting the development of the Center and to obtain information and advice from the committee members. In addition, the Center sponsored one public lecture in cooperation with the State Water Survey.

Representatives of the Center attended several meetings. Professors G. W. White and J. P. Murtha attended a conference related to water resources at the University of Indiana. Professors V. T. Chow, Department of Civil Engineering, and J. P. Murtha attended the annual meeting of the Universities Council on Hydrology in Estes Park, Colorado. Professor Murtha gave a talk describing the Center to the Hydraulic Engineers Club in Champaign.

Of particular importance to the Center is the Water Resources Research Act. This Act was passed by the federal government in July, 1964 and authorizes funds to be appropriated to assist in the establishment of a water resources research institute in one university or college in each state. The Act provides that the University or college selected be a land grant school, or some other institution designated by act of the state legislature. The assistance provided by this Act will be of significant help in the development of graduate training and related research in water resources. A report describing previous research and other activities related to water resources was sent to Governor Otto J. Kerner by President D. D. Henry. In addition, Center representatives have discussed their activities with other state agencies such as the Illinois State Board for Economic Development and the Illinois Division of Waterways. The Center maintains formal cooperation with the State Scientific Surveys located on the Urbana Campus.

Members of the Executive Committee are:

G. W. White, Chairman
M. B. Russell
R. J. Martin

T. E. Larson
J. C. Frye
J. P. Murtha

8. Survey Research Laboratory. The creation of a special unit of the Graduate College, to be called the Survey Research Laboratory, has been approved by the Executive Committee, the University Research Board and the Executive Vice President and Provost. The functions of the Laboratory will be to: plan, conduct, and process survey operations for University research projects, and, to carry out this function, to create an operating survey organization with facilities for maintaining and interviewing probability samples of the population of the state of Illinois; conduct and promote research in survey methods; provide a means for training undergraduate and graduate students in survey methods; act as a data repository for survey and other data on the state of Illinois.

Such a laboratory will serve to coordinate and facilitate the large number of University projects which currently use survey methods and will promote research on questions which can only be answered through the use of surveys.

Until now, the University has possessed no central laboratory for maintaining survey operations, for collecting survey data, or for storing research data in a form readily available to faculty members and students.

The operations of the Survey Research Laboratory will be conducted by faculty members who hold departmental appointments. Primary administrative responsibility will rest with a Director and an executive committee.

It is intended that the groundwork of the Laboratory will be laid during the forthcoming summer and academic year. During this period, a so-called master sample of the population of Illinois will be developed and a field force of interviewers will be established and trained in all areas encompassed by the master sample. During this same period, plans would be completed for a perpetual data repository. Such a repository would seek to develop an inventory of data needed in studies carried out by University faculty, and would maintain data relating to the business conditions and welfare of the state of Illinois.

A major function of the Laboratory will be to educate graduate and undergraduate students in survey techniques. Students will be given an opportunity to work under general faculty supervision and will be involved closely with the operational phases of a survey project. In addition, graduate students will be able to carry out dissertation projects using the resources of the Survey Research Laboratory.

It is anticipated that the Survey Research Laboratory will be ready for regular operations by September, 1965.

Members of the ad hoc committee which formulated plans for the Survey Research Laboratory were:

Robert Ferber, Chairman
George Brinegar
Lucile Derrick
Bernard Lazerwitz
Mark Lepper
William McLure
Gilbert Steiner
Denis Sullivan

A permanent Executive Committee and Director will be appointed later.

9. Center for International Comparative Studies. In consultation with the departments concerned, the Acting Dean and the Executive Committee of the Graduate College recommend that there be established in the Graduate College a Center for International Comparative Studies. The Center will supplement programs previously established and for which funds have been provided in state appropriations for the current biennium (1963-64). The earlier programs and the new Center will also be supported over a period of five years by a grant received from the Ford Foundation.

In recent years, the University has become increasingly committed to strengthening its international programs. The consequent need for supporting and coordinating the rapid expansion of teaching and research activity concerned with world affairs is being met in a variety of ways, among them the establishment and growth of interdisciplinary centers for the Russian, Latin-American and Asian areas. The "center" approach has been of great value in focusing scholarly attention upon particular world regions and cultures. As yet, however, there has been little systematic attempt to encourage scholarly concern with basic research problems that cut across different world cultures and to assure the "feedback" of such research into the ongoing work of the departments.

The purpose of the proposed Center will be to provide a framework within the University for stimulating and supporting comparative research of a functional and problem-oriented nature along cross-cultural, cross-national, and cross-regional lines. Its central function will be to develop means of encouraging such research and criteria for supporting it, including appropriate arrangements for released time for faculty research and for financing overseas travel for research scholars. Preference for support will be given to research programs that involve the training of graduate students.

While the Center will seek to encourage, coordinate, and sponsor research among the disciplines and regional studies groups, it should serve the entire University community on all three campuses. It will assist faculty who are not associated with established regional centers as well as those who are, and will consider support for both individual and group projects. The Center will also entertain research proposals involving collaboration with scholars from other institutions in the United States and abroad. A Director and Executive Committee will be appointed later.

G. Support of Scholarly Publications

1. Publications by the University Press. The University of Illinois Press is the central agency responsible for coordinating and producing all University publications. One of its important functions has been to provide for book publication of worthwhile studies by scholars and research workers on the campus and elsewhere. It has been especially concerned with gaining a hearing for authors whose works have importance and quality but lack the wide appeal required for commercial publication.

Since it was established in 1918, the University Press has published more than 800 scholarly and scientific books. It has earned a world-wide reputation not only for its distinguished lists but also for its excellent graphic design. Besides an output of thirty or more books each year, it issues quarterly journals in law, mathematics, library science, language and literature. A new series of paperback books, Illini Books, was begun a year ago and now contains twenty titles. A display of publications of the University Press is a feature of the new bookstore at the Illini Union.

Members of the University Press Board during 1963-64 include:

T. Peterson, Chairman
H. E. Carter, ex officio
R. W. Johannsen
M. Muntyan, Secretary, ex officio
R. W. Rogers
J. R. Shipley
P. E. Yankwich

Committee members for the University Studies series were:

Biological Monographs:	F. J. Kruidenier, Chairman Leon Campbell D. P. Rogers Hobart Smith J. G. Sternburg S. G. Stolpe
Monographs in Anthropology:	J. B. Casagrande, Chairman J. R. Gusfield J. A. Russell
Monographs in Medical Sciences:	S. R. M. Reynolds, Chairman E. R. Kirch I. Schour J. P. Marbarger R. J. Winzler
Studies in Language and Literature:	B. A. Milligan, Chairman J. R. Frey Philip Kolb

Studies in the Social Sciences:
R. W. Harbeson, Chairman
R. W. Johannsen
R. E. Scott
M. H. Fisch

2. *Annual List of Publications of the Faculty*. The 1963 listing of scholarly and professional publications by faculty and administration again was substantially increased in length over other years. Approximately 1,600 faculty members from the Urbana and Chicago campuses are represented with one or more publications for the calendar year. The list also includes titles of doctoral dissertations submitted in 1963 to the various departments. One of the problems of editing a list such as this lies in the area of decision-making: what *is* a scholarly publication? It is hoped that before the 1964 listing is made, a meeting at the administrative level can come closer to an explicit answer, one broad enough to be applicable to many subject matter fields.

3. *The Illinois Journal of Mathematics* and *The Journal of English and Germanic Philology*. These journals are published quarterly under the auspices of the Graduate College. Since June of 1963, *The Illinois Journal of Mathematics* has received 125 papers from eight countries including the United States, representing an increase of 60 percent over the number of papers received the preceding year; it published fifty-three of those papers, totaling 708 pages. Circulation increased by 21 percent over a year ago.

The four issues of *The Journal of English and Germanic Philology* for 1963 contained a total of 904 pages divided between forty-four articles and 162 reviews. The Board of Editors are currently accepting about 20 percent of the articles submitted to them.

Serving on the editorial board of *The Illinois Journal of Mathematics* during 1963-64 were:

R. G. Bartle, Chairman
P. T. Bateman
D. G. Bourgin
S. S. Chern
P. Hilton
M. Suzuki

Serving as board members for *The Journal of English and Germanic Philology* for 1963-64 were:

J. Stillinger, Chairman
A. E. Barker
G. B. Evans
P. M. Mitchell
E. A. Philippson
R. W. Rogers
G. B. Stillwell

IV. THE CHICAGO UNDERGRADUATE DIVISION LIAISON COMMITTEE

During 1963-64, the Committee continued to operate much as in the previous two years of its existence, but with its first rotation in membership. The members attended meetings of the Executive Committee of the Graduate College, and the University Research Board, as well as meetings of the subcommittees of the Executive Committee. Through these liaison activities, the introduction of advanced courses (and at a later date, graduate programs) at the Chicago Circle Campus may be undertaken with a greater familiarity concerning procedures employed on the Urbana Campus. Moreover, it is believed that the somewhat increased research activity at the Chicago Undergraduate Division stems in part from the encouragement and advice provided by individual members of the Liaison Committee.

With the appointment of a representative of the Graduate College on this Campus, planned for September 1, 1964, and with the physical move to Chicago Circle in 1965, it is anticipated that the role of the Liaison Committee may be altered somewhat. Nonetheless, there remains a place for this, or a similar, committee to facilitate appropriate liaison with the central office of the Graduate College in Urbana.

Committee members for the year included:

A. Cutshall, Chairman
G. Goodman
R. Karpinski
J. Sanchez
A. Schiller
F. Wiesinger

V. CHICAGO MEDICAL CENTER DIVISION OF THE GRADUATE COLLEGE

A. Introduction

Initiation of the several new policies and programs reported in last year's annual report were major considerations in the strengthening of graduate degree programs at the Medical Center. Activation of the Master of Science in Nursing (M.S.-N.) curriculum was successfully accomplished with the registration of five candidates supported by a N.I.H. graduate training grant in the College of Nursing, bringing the total offerings at the master's level to eighteen. A number of policy matters were decided and will be related separately in the subheadings which follow.

1. Graduate Degree Programs in Clinical Areas. A new curriculum leading to a Master of Science in Orthopaedics was finally approved by the faculty after a cooperative program to offer and administer graduate work in this area under the aegis of a basic science department did not prove satisfactory. Action for approval was culminated after a general faculty meeting was held to determine a policy for expansion of graduate work at the Master's level in clinical areas. The decision was in the affirmative -- but there was reluctance to extend any approval for Ph.D. programs in clinical disciplines.

2. Combination Professional-Graduate Degree Programs. An administrative emphasis on a combined M.D. - M.S. and M.D. - Ph.D. program was renewed. Since the advent of N.I.H. training grants, support for research and graduate training of students pursuing professional degrees has become more common. During the year, $27,516 was made available by the College of Medicine from its N.I.H. General Research Support Grant for research training stipends for medical students; some conducted research and graduate work on a part-time basis during the academic year, others on a full-time basis during the summer. A total of fifty-three medical students participated in this program which represents a substantial increase over the twenty-nine participants during the previous year. A similar N.I.H. program provided $13,200 for twenty-two students pursuing the College of Dentistry professional curriculum. It is hoped that this avenue may provide the encouragement and incentive for more of our professional students to engage ultimately in academic and research careers. The current number of full-time budgeted vacancies in medical and dental colleges continues at about 7 percent of the total budgeted positions. The need for more professional college graduates with supplemental training at the graduate level to fill these positions is obvious.

3. Concurrent Registration for Undergraduates. With the advent of the five-year curriculum leading to the B.S. in Pharmacy, the possibility of concurrent registration in the Graduate College during the fifth year of the undergraduate curriculum was proposed by the faculty of the College of Pharmacy. The proposal was approved by the Graduate College Executive Committee, permitting fifth-year students who had an over-all B average to register for 3/4 unit per quarter (this represents a 25 percent overload) in graduate work; in effect, they are initiating their graduate program before completing the B.S. degree. The objective, as with medical and dental undergraduates, is to entice more professional college graduates into the fields of research and teaching.

4. Preparation for Teaching. In support of the concept that the Graduate College on this campus has a major responsibility of training students for academic careers, the Associate Dean suggested the offering of a formal graduate course, "Principles of Teaching." A course outline, prepared by Dr. George Miller, Director of Research on Medical Education, was approved and offered during the Fall Quarter. The explicit objectives are "to lead students to a greater familiarity with classic and contemporary studies on learning and instruction," and "to acquire some understanding of the implications of these findings for educational practices in the health sciences." Included in the course is a consideration of "A Taxonomy of Intellectual Processes" and student accomplishments. The response from the ten graduate students who registered for the course indicates that the course fulfills a real need and it was well received.

5. Foreign Language Examinations. The foreign language requirement for Ph.D. students is a problem on this campus because neither formal courses nor faculty examiners are available. For lack of funds, evening courses in scientific French and German were not approved by the Vice President and Provost. An increasing number of students has made the examining procedure conducted by the faculty from the Navy Pier both cumbersome and time consuming. Hence, the announcement of standardized examinations by Educational Testing Service was welcomed, and arrangements were made to offer the new test along with our regular procedure as a control. Results obtained indicated the new test was feasible, convenient, and gave parallel results. A cut-off score of 400 was set for future use. The Executive Committee approved its use in place of our previous routine for testing competence in French, German, and Russian.

6. CIC Program Participation. The announcement of the program of the Committee for Interinstitutional Cooperation (CIC) augurs well for the students on this campus since it makes opportunities at the University of Chicago and Northwestern University available on a reciprocal basis. A mutual exchange with the University of Chicago has been consumated for the benefit of several students. Expansion of these opportunities can be anticipated.

B. Administration

1. Enrollment. A substantial increase in the number and quality of applicants has again made possible the admission of a selective group of students. Enrollment increased from 198 in the Fall Quarter of 1962-63, to 240 in 1963-64, which represents a 21 percent increase over the previous year. For the third successive year, the enrollment has increased more than 20 percent over the previous year. The increased awareness of the existence of graduate degree programs on this campus, partly through the circulation of special brochures, is responsible for this trend. Because of the rapid expansion and the general concern of the University administration over mounting enrollments in the Graduate College, heads of

departments conducting a graduate degree program were asked to estimate the number of students that each graduate student advisor could adequately supervise within the departmental physical facilities, funds, and faculty time. The total number reported is 352. It appears that this number would be realized within two years, if the current trend for increased enrollment continues unabated. The circumstances surrounding this fact are of real concern to the professional college deans, who are properly anxious to forestall any undue encroachment on faculty time for undergraduate instruction. An optimum end-point for the attainment of both graduate and undergraduate objectives will have to be resolved within the next three years.

2. Financial Aid. Financial support of graduate programs, for both direct costs and student stipends, has been supplemented by the expanding training program of the National Institutes of Health. With this increased support has come a number of new administrative problems. Twenty-seven grants in thirteen disciplines, with a total dollar-value of $967,377, are utilized to a large extent in promoting and sustaining graduate degree programs. See Table 18. Approximately one-half of the students receiving stipends derived their income from this source, or from other types of federal fellowships. The administration of training grant funds through the Graduate College Office has been one of the major time-consuming additional responsibilities that has developed in recent years. A rational pattern for determining the size of stipends for graduate student, as well as non-graduate student, recipients was not the least of several on-going administrative problems that had to be resolved.

A proposal for awarding "Certificates" to those trainees in the clinical areas who pursue no formal graduate degree program while completing their training period was rejected by the Executive Committee as an inappropriate function for the Graduate College. With the inclusion of an item for student-trainee travel in most training grants, a policy for appropriate travel expenses had to be considered.

During the year, seventy-six graduate degree candidates held fellowships or traineeships administered by the Graduate College. In addition, approximately the same number of fellowships were awarded or administered for non-graduate degree students. Forty-one research assistants and thirty-five teaching assistants, primarily on a half-time basis, were appointed by the departments from among the graduate students. A total of 83 percent of the graduate students received stipends of approximately $200 per month. Seventy percent were supported by funds derived from federal sources and about 30 percent by University funds. Twenty-five tuition and fee waivers were awarded as an additional University contribution.

3. Courses, Curricula, and Graduate Faculty. Seven members of the faculty were approved for full status, twelve for master's standing, and eight for limited status. Eleven new courses were approved. A tabulation of student registration in each course currently listed in the catalogue is being maintained; proper action, according to existing Senate resolution on their continued listing, will be taken before the next biennial printing of the catalogue. A Master of Science program in Orthopaedics was approved and action is pending by the Board of Higher Education.

Members of the Executive Committee for 1963-64 were:

Dr. Milan V. Novak, Chairman
Dr. Hubert R. Catchpole
Dr. Ralph Daniels
Dr. Milton B. Engel
Dr. Bernard Greenberg
Dr. Robert W. Pumper
Dr. Martin P. Schulman
Dr. Neena B. Schwartz
Dr. Bernard Weissmann

4. Degrees Conferred. A total of thirty-eight Master of Science and fifteen Doctor of Philosophy degrees were awarded. An increasing number of students are by-passing the Master of Science degree and working directly toward the Ph.D. degree. See Table 16 for a breakdown of degrees awarded by field of study.

C. Promotion and Assistance of Research

During the year 1963-64, sixty-two requests were approved by the University Research Board Chicago Medical Center Subcommittee for a total allocation of $329,851. Major portion of these funds provided for the purchase of research equipment. Two sizable items were for an IBM, 1620 Model 2, Basic Computer ($89,568) and a Mass Spectrometer ($48,430). Allocations by departments and colleges are summarized in Table 19. Because a large number of items of equipment have been purchased over a period of years, and the current status and use of the equipment was obscure, an itemized listing was sent to all departments requesting information as to current use and availability for transfer or use by others. A surprising number of such items was declared surplus, or those in possession indicated willingness to share its use. The results of the survey were mimeographed and circulated to key investigators and it is hoped that duplication of equipment may be forestalled wherever feasible.

Members of the Research Board Subcommittee were:

Dr. Milan V. Novak, Chairman
Dr. John P. Marbarger
Dr. Alfred J. Perkins
Dr. Neena B. Schwartz
Dr. James A. Yaeger

D. Problems for Future Consideration

Inadequate housing for graduate students is a primary problem. Priority for University housing is extended to undergraduates, especially women; when priorities are exercised, practically no places will be available for graduate students. This situation has become more acute recently with the rapid expansion of the College of Nursing enrollment of undergraduate nurses.

The need for local formal instruction in French and German continues. An attempt to conduct evening courses under the direction of the Extension Division was not approved because of budgetary restriction.

A clarification of tuition and service fees will be sought in order to define these charges for the many diverse kinds of students and situations encountered in graduate work in a large medical center and a metropolitan area.

The quality and number of foreign graduate students will require more intense scrutiny to prevent deterioration of standards. Some departments have 40 to 50 percent foreign students in their total enrollment. See Table 17 for classification of students by permanent residence and academic background.

APPENDIX

TABLE 1

ENROLLMENT BY DEPARTMENTS -- URBANA

1963-64 -- 1961-62

DEPARTMENT	1963-64	1962-63	1961-62
AGRICULTURE			
Agricultural Economics	71	61	61
Agricultural Education	14	9	11
Agricultural Engineering	16	21	18
Agronomy	78	64	80
Animal Science	61	50	58
Animal Nutrition	1	4	7
Dairy Science	29	33	27
Food Technology	49	48	41
Dairy Technology	5	8	9
Forestry	7	5	a
Home Economics	56	54	50
Home Economics Education	8	15	16
Horticulture	23	29	23
Plant Pathology	25	23	21
Subtotal	443	424	422
COMMERCE AND BUSINESS ADMINISTRATION			
Accountancy	84	76	77
Accounting Science	54	52	25
Business	40	43	52
Business Administration	115	81	39
Commercial Teaching	36	34	24
Economics	135	132	112
Finance	37	39	36
Management	13	16	13
Marketing	58	48	29
Subtotal	572	521	407
EDUCATION			
Education	1,788	1,673	1,542
Education of Deaf	1	0	1
Education of Mentally Handicapped Children	8	10	9
Subtotal	1,797	1,683	1,552

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1963-64	1962-63	1961-62
ENGINEERING			
Aeronautical and Astronautical Engineering	38	33	34
Ceramic Engineering	29	19	22
Civil Engineering	371	306	288
Sanitary Engineering	24	24	17
Electrical Engineering	353	337	345
Mechanical Engineering	151	152	163
Metallurgical Engineering	53	52	57
Mining Engineering	13	10	11
Nuclear Engineering	56	49	46
Physics	334	287	265
Teaching of Physics	0	2	1
Theoretical and Applied Mechanics	86	96	93
Subtotal	1,508	1,367	1,342
FINE AND APPLIED ARTS			
Architecture	34	35	41
Architectural Engineering	30	18	7
Art			
Art Education	26	19	14
Art History	17	10	10
Design	8	5	5
Painting and Printmaking	31	28	24
City Planning	21	27	23
Landscape Architecture	12	3	10
Music	131	87	65
Musical Arts	54	53	55
Music Education	187	193	175
Musicology	14	16	16
Subtotal	565	494	445
JOURNALISM AND COMMUNICATIONS			
Advertising	27	20	11
Journalism	29	24	22
Radio and Television	19	11	6
Television	2	6	7
Subtotal	77	61	46
LAW			
Law	15	8	9
Comparative Law	5	5	4
Subtotal	20	13	13

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1963-64	1962-63	1961-62
LIBERAL ARTS AND SCIENCES			
Anthropology	47	40	24
Astronomy	14	13	11
Biological Sciences	39	24	13
Teaching of Biological Sciences and General Science	35	38	33
Botany	46	48	47
Chemistry	361	344	326
Chemical Engineering	51	51	55
Teaching of Chemistry	12	12	3
Classics			
Classical Philology	7	7	6
Greek	7	3	3
Latin	10	7	3
Teaching of Latin	3	2	4
Comparative Literature	4	a	a
English	308	287	284
Teaching of English	33	33	30
Entomology	42	41	42
French	84	85	62
Teaching of French	3	4	4
Geography	35	30	39
Teaching of Geography	4	2	1
Geology	82	83	86
German	45	36	27
Teaching of German	3	5	7
History	166	152	132
Linguistics	25	24	12
Mathematics	421	419	336
Statistics	19	15	15
Teaching of Mathematics	87	88	55
Teaching of Mathematics and Physical Sciences	1	a	0
Microbiology	50	52	56
Philosophy	34	33	45
Physical Sciences	0	0	4
Teaching of Physical Sciences	4	6	5
Physiology	64	67	60
Political Science	95	70	71
Public Administration	4	3	0
Psychology	189	172	159
Russian	28	17	11
Social Sciences	21	12	6
Teaching of Social Studies	32	40	35
Sociology	53	52	58

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1963-64	1962-63	1961-62
Spanish	86	67	62
Italian	1	1	1
Portuguese	1	2	1
Teaching of Spanish	9	6	4
Speech	138	126	113
Speech Correction	18	20	17
Teaching of Speech	5	8	3
Zoology	99	84	69
Subtotal	2,925	2,731	2,440
PHYSICAL EDUCATION			
Dance	6	7	5
Health Education	12	15	19
Physical Education	161	143	137
Recreation	38	33	35
Subtotal	217	198	196
OTHER			
Biophysics	23	15	8
Chemical Physics	3	2	0
Communications	60	56	50
Extension Education	10	7	a
Labor and Industrial Relations	56	45	48
Library Science	266	242	237
Social Work	126	105	87
Veterinary Medical Science	54	47	50
Subtotal	598	519	480
UNCLASSIFIED	558	502	419
IN ABSENTIA	(362)[c/]	(221)[b/]	(196)[b/]
TOTAL	9,280	8,513	7,762

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a/ Program not offered.

b/ These students are included in the foregoing departmental figures.

c/ Doctoral candidates who have passed preliminary examinations and are registered for dissertation in absentia. These are included in the foregoing figures.

TABLE 2

DEGREES CONFERRED BY FIELD OF STUDY

THREE-YEAR COMPARISON

Urbana Campus -- Chicago Medical Center -- Totals

URBANA

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1963-64	1962-63	1961-62	1963-64	1962-63	1961-62
Accountancy	4	9	5	16	15	13
Advertising	a	a	a	5	3	0
Aeronautical and Astronautical Engineering	1	0	3	10	7	9
Agricultural Economics	1	9	11	13	9	16
Agricultural Education	a	a	a	3	1	2
Agricultural Engineering	a	a	a	8	6	4
Agronomy	8	6	15	14	6	15
Animal Nutrition	2	2	3	a	0	0
Animal Science	5	4	3	10	2	9
Anthropology	0	0	0	1	4	1
Architectural Engineering	a	a	a	12	4	4
Art Education	a	a	a	3	6	3
Art History	a	a	a	3	1	2
Astronomy	0	2	0	3	2	2
Biology [b]	0	a	a	7	4	1
Biophysics	2	1	0	3	1	a
Botany	8	4	3	8	7	7
Business	12	11	6	a	a	a
Ceramic Engineering	5	3	2	6	10	3
Chemical Engineering	6	7	10	11	19	10
Chemistry	44	58	47	41	44	42
City Planning	a	a	a	7	9	7
Civil Engineering	39	19	28	108	86	83
Classical Philology	1	0	1	a	a	a
Classics	a	a	a	2	0	0
Commercial Teaching	a	a	a	7	2	4
Communications	8	2	2	a	a	a
Dairy Science	3	8	3	5	9	2
Dairy Technology	0	2	2	3	1	0
Dance	a	a	a	2	1	1
Economics	13	10	8	40	16	21
Education	17	10	11	16	3	15
Education of Deaf	a	a	a	0	0	0
Education of Mentally Handicapped Children	a	a	a	2	7	10

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a/ Degree not offered.

b/ Formerly Biological Sciences.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1963-64	1962-63	1961-62	1963-64	1962-63	1961-62
Electrical Engineering	36	28	28	78	102	96
English	18	23	21	41	44	44
Entomology	4	5	6	2	3	2
Finance	2	2	2	9	6	11
Food Science[c]	8	6	6	5	5	4
Forestry	a	a	a	2	0	a
French	2	3	0	16	13	14
Geography	2	4	5	3	4	3
Geology	11	20	18	7	9	13
German	0	1	0	4	6	1
Greek	a	a	a	0	2	1
Health Education	a	a	a	4	11	8
History	9	5	8	34	16	14
Home Economics	0	1	0	16	13	7
Home Economics Education	a	a	a	1	2	1
Horticulture	3	3	2	6	4	4
Italian	0	0	1	0	0	0
Journalism	a	a	a	8	8	4
Labor and Industrial Relations	a	a	a	20	11	15
Latin	a	a	a	4	1	0
Library Science	4	1	1	88	81	65
Linguistics	0	0	0	3	4	7
Management	a	a	a	6	4	4
Marketing	2	0	0	7	12	9
Mathematics	23	12	17	103	134	80
Mechanical Engineering	14	6	9	47	38	53
Metallurgical Engineering	5	3	6	11	11	8
Microbiology	5	7	8	6	4	3
Mining Engineering	3	0	0	1	1	4
Music Education	a	a	a	37	45	35
Musicology	0	3	0	a	a	a
Nuclear Engineering	1	0	0	18	13	25
Philosophy	2	1	4	3	5	4
Physical Education	7	6	2	30	32	36
Physical Sciences	a	a	a	0	0	1
Physics	25	14	27	78	68	54
Physiology	7	6	4	8	13	15
Plant Pathology	1	6	3	3	3	0
Political Science	4	6	7	8	9	10
Portuguese	0	0	0	1	0	0
Psychology	16	20	15	19	16	16
Public Administration	a	a	a	0	0	1

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a/ Degree not offered.

c/ Formerly Food Technology.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1963-64	1962-63	1961-62	1963-64	1962-63	1961-62
Radio and Television	a	a	a	5	2	3
Recreation	a	a	a	22	13	15
Russian	0	0	0	6	2	1
Sanitary Engineering	3	0	0	5	12	4
Social Sciences	a	a	a	4	4	1
Sociology	8	1	8	4	6	3
Spanish	2	3	5	22	14	10
Speech	8	9	11	27	20	18
Speech Correction	a	a	a	3	3	4
Statistics	0	0	1	4	2	4
Teaching of Biological Sciences and General Science	a	a	a	17	10	18
Teaching of Chemistry	a	a	a	1	2	1
Teaching of English	a	a	a	5	11	6
Teaching of French	a	a	a	0	2	0
Teaching of Geography	a	a	a	0	1	0
Teaching of German	a	a	a	0	3	3
Teaching of Latin	a	a	a	0	1	1
Teaching of Mathematics	a	a	a	16	10	11
Teaching of Physical Sciences	a	a	a	0	1	1
Teaching of Physics	a	a	a	0	0	1
Teaching of Social Studies	a	a	a	4	16	11
Teaching of Spanish	a	a	a	1	0	2
Teaching of Speech	a	a	a	2	3	0
Theoretical and Applied Mechanics	18	15	8	16	17	23
Veterinary Medical Science	4	3	4	8	12	6
Zoology	5	6	6	9	19	6
Subtotal	441	396	406	1,287	1,224	1,111

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a/ Degree not offered.

DEGREES CONFERRED (Continued)

PROFESSIONAL DEGREES CONFERRED - URBANA

	1963-64	1962-63	1961-62
Doctor of Business Administration	0	4	0
Doctor of Education in			
Education	24	26	12
Music Education	11	5	5
Doctor of Musical Arts	4	2	3
Doctor of the Science of Law	0	0	0
Advanced Certificate in			
Education	50	39	27
Music Education	2	1	2
Certificate of Advanced Study in Librarianship	1	a	a
Master of Accounting Science	30	24	13
Master of Architecture	20	10	21
Master of Business Administration	18	6	6
Master of Commerce	1	3	2
Master of Comparative Law	2	2	0
Master of Education	404	351	306
Master of Extension Education	5	0	a
Master of Fine Arts in			
Design	0	2	0
Landscape Architecture	1	3	3
Painting and Printmaking	11	6	8
Master of Laws	1	2	6
Master of Music	31	20	8
Master of Social Work	48	30	28
Master of Television	0	4	0
Subtotal	664	540	450
TOTAL DEGREES CONFERRED, URBANA	2,392	2,160	1,967

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a/ Degree not offered.

DEGREES CONFERRED (Continued)

CHICAGO MEDICAL CENTER

FIELD OF STUDY	Ph.D. 1963-64	Ph.D. 1962-63	Ph.D. 1961-62	M.S. 1963-64	M.S. 1962-63	M.S. 1961-62
MEDICAL						
Anatomy	0	3	3	3	5	4
Biochemistry	7	4	4[d]	2	4	3[d]
Microbiology	3	1	2	3	1	5
Pathology	0	0	0	0	0	0
Pharmacology	1	0	1	2	2	0
Physiology	2	2	3	0	1	3
Surgery	0	0	0	5	6	4
Totals Majoring in Medical Sciences	13	10	13	15	19	19
DENTAL						
Histology (Dental)	0	0	0	7	3	2
Oral Pathology	0	0	0	1	1	2
Oral Surgery	0	0	0	2	2	3
Orthodontics	0	0	0	5	9	7
Pedodontics	0	0	0	2	0	1
Totals Majoring in Dental Sciences	0	0	0	17	15	15
PHARMACY						
Chemistry (Pharm)	2	7	5	2	1	3
Pharmacognosy	0	0	0	0	0	0
Pharmacy	0	0	0	4	2	1
Totals Majoring in Pharmacy Sciences	2	7	5	6	3	4
NURSING						
Psychiatric Nursing	0	-	-	0	-	-
Totals Majoring in Nursing Sciences	0	0	0	0	0	0
TOTAL DEGREES CONFERRED, CHICAGO	15	17	18	38	37	38

TOTAL DEGREES CONFERRED

	1963-64	1962-63	1961-62
TOTAL, URBANA AND CHICAGO CAMPUSES	2,445	2,214	2,023

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[d] Degree given in Biological Science.

TABLE 3

SUMMARY OF FELLOWS IN RESIDENCE

1963-1964

Type of Fellowship	Number in Residence (as of Fall, 1963)
I. Supported by University Funds	
A. University Fellows	137
B. University Teaching Fellows	68
Subtotal	205
II. Supported by Industries, Endowments, and Foundations	
A. Industries and Foundations	119
B. Woodrow Wilson Fellows	12
Subtotal	131
III. Supported by the U. S. Government	
A. National Science Foundation	
1. Cooperative	52
2. Graduate	39
3. Mathematics Institute	49
4. Science Faculty	3
B. Department of Health, Education, and Welfare	
1. National Defense Education Act (Title IV)	52
2. National Defense Education Act (Title VI)	8
3. U. S. Public Health Service Predoctoral	38
4. U. S. Public Health Service Trainees	127
5. Other	31
C. National Aeronautics and Space Administration	12
D. Atomic Energy Commission	15
Subtotal	426
TOTAL, 1963-64	762
Total, 1962-63	708

TABLE 4

APPLICATIONS FOR FINANCIAL AID

1964-1965

Applicants by Areas of Instruction

Preference	0	1	2	3	4	5	6	7	8	9	1964-65 Total	1963-64 Total
Fellowship	164	440	204	765	326	113	144	91	978	673	3898	3223
Teaching Fellowship	43	117	51	113	40	25	36	4	285	108	822	652
Assistantship	68	185	93	179	106	106	84	75	414	299	1609	1382
Tuition and Fee Waiver	12	16	16	21	23	4	1	3	13	15	124	97
Not Indicated	1	7	2	5	5	8	2	2	16	8	56	3
1964-65 TOTAL	288	765	366	1083	500	256	267	175	1706	1103	6509	
1963-64 TOTAL	253	623	285	865	363	210	225	151	1424	958		5357
Increase 1964-65 Over 1963-64		23%	28%	25%	38%	22%	19%	16%	27%	15%	22%	

CODE

Number	Areas of Instruction	Number	Areas of Instruction
0	Not known	5	Education
1	Humanities (pure and applied)	6	Biological Sciences (pure)
2	Arts (pure and applied)	7	Biological Sciences (applied)
3	Social Sciences (pure)	8	Physical Sciences (pure)
4	Social Sciences (applied)	9	Physical Sciences (applied)

TABLE 5

FELLOWSHIPS AWARDED

1964-1965

DEPARTMENT	UNIVERSITY	INDUSTRIAL AND ENDOWED	FEDERAL										TOTAL
			National Science Foundation					U. S. Department of Health, Education and Welfare				NASA	
			Cooperative	Graduate	Engineering Trainee	Math Institute	Science Faculty	USPHS Predoctoral	USPHS Trainees	NDEA IV	NDEA VI		
Accountancy	3	1	-	-	-	-	-	-	-	-	-	-	4
Advertising	1	-	-	-	-	-	-	-	-	-	-	-	1
Aeronautical and Astronautical Engineering	1	1	-	-	2	-	-	-	-	-	-	3	7
Agricultural Economics	2	-	-	-	-	-	-	-	-	-	-	-	2
Agricultural Engineering	2	1	-	-	1	-	-	-	-	-	-	-	4
Agronomy	6	1	-	-	-	-	-	-	-	-	-	-	7
Animal Science	3	-	-	-	-	-	-	-	-	-	-	-	3
Anthropology	4	-	-	-	-	-	-	3	-	6	1	-	14
Architecture	2	-	-	-	-	-	-	-	-	-	-	-	2
Art	3	-	-	-	-	-	-	-	-	-	-	-	3
Astronomy	1	-	-	-	-	-	-	-	-	-	-	1	2
Biological Sciences	1	-	-	-	-	-	-	-	-	-	-	-	1
Botany	3	-	-	-	-	-	-	-	-	-	-	-	3
Business Administration	3	-	-	-	-	-	-	-	-	-	-	-	3
Ceramic Engineering	1	4	-	-	2	-	-	-	-	-	-	1	8
Chemical Engineering	10	8	2	3	4	-	-	-	-	-	-	-	27
Chemistry	38	23	6	18	-	-	1	4	4	-	-	1	95
Civil Engineering	11	1	1	2	14	-	4	1	-	4	-	2	40
Classics	4	-	-	-	-	-	-	-	-	-	-	-	4
Communications	2	-	-	-	-	-	-	-	-	-	-	-	2

FELLOWSHIPS AWARDED (Continued)

DEPARTMENT	UNIVERSITY	INDUSTRIAL AND ENDOWED	FEDERAL										TOTAL
			National Science Foundation					U. S. Department of Health, Education and Welfare					
			Cooperative	Graduate	Engineering Trainee	Math Institute	Science Faculty	USPHS Predoctoral	USPHS Trainees	NDEA IV	NDEA VI	NASA	
Comparative Literature	-	-	-	-	-	-	-	-	-	5	-	-	5
Dairy Science	1	-	-	-	-	-	-	-	-	-	-	-	1
Dance	1	-	-	-	-	-	-	-	-	-	-	-	1
Economics	11	2	-	-	-	-	-	-	-	5	-	-	18
Education	6	-	-	-	-	-	-	-	-	6	-	-	12
Electrical Engineering	23	4	2	1	17	-	-	-	-	-	-	1	48
English	11	-	-	-	-	-	-	-	-	-	-	-	11
Entomology	2	-	-	-	-	-	-	-	4	-	-	-	6
Finance	3	-	-	-	-	-	-	-	-	-	-	-	3
Food Science	3	1	-	-	-	-	-	1	1	-	-	-	6
French	7	-	-	-	-	-	-	-	-	-	-	-	7
Genetics	-	-	-	-	-	-	-	1	-	-	-	-	1
Geography	3	-	-	-	-	-	-	-	-	-	-	-	3
Geology	6	2	3	2	-	-	-	-	-	-	-	-	13
German	3	-	-	-	-	-	-	-	-	-	-	-	3
History	9	1	-	-	-	-	-	-	-	-	1	-	11
Home Economics	1	2	-	-	-	-	-	-	-	-	-	-	3
Horticulture	1	1	-	-	-	-	-	-	-	-	-	-	2
Journalism	1	-	-	-	-	-	-	-	-	-	-	-	1
Labor and Industrial Relations	2	-	-	-	-	-	-	-	-	-	-	-	2
Law	3	-	-	-	-	-	-	-	-	-	-	-	3
Library Science	1	-	-	-	-	-	-	-	-	-	-	-	1
Linguistics	2	-	-	-	-	-	-	-	-	7	-	-	9
Mathematics	22	2	5	2	-	47	2	-	-	-	-	5	85

FELLOWSHIPS AWARDED (Continued)

DEPARTMENT	UNIVERSITY	INDUSTRIAL AND ENDOWED	FEDERAL										TOTAL
			National Science Foundation					U. S. Department of Health, Education and Welfare				NASA	
			Cooperative	Graduate	Engineering Trainee	Math Institute	Science Faculty	USPHS Predoctoral	USPHS Trainees	NDEA IV	NDEA VI		
Mechanical Engineering	7	-	1	1	6	-	-	-	-	-	-	1	16
Microbiology	-	-	-	-	-	-	-	2	17	-	-	-	19
Mining, Metallurgy and Petroleum Engineering	-	2	1	-	4	-	-	-	-	-	-	-	7
Music	13	-	-	-	-	-	-	-	-	-	-	-	13
Nuclear Engineering	3	-	-	-	3	-	-	-	-	2	-	3	11
Philosophy	3	-	-	-	-	-	-	-	-	-	-	-	3
Physical Education	2	-	-	-	-	-	-	-	-	-	-	-	2
Physics	24	8	7	7	-	-	-	-	-	-	-	6	52
Physiology and Biophysics	4	-	-	1	-	-	-	2	5	3	-	1	16
Plant Pathology	1	-	-	-	-	-	-	-	-	-	-	-	1
Political Science	6	9	-	-	-	-	-	-	-	-	-	-	15
Psychology	10	1	2	1	-	-	-	1	-	4	-	1	20
Radio-Television	2	-	-	-	-	-	-	-	-	-	-	-	2
Slavic Languages	4	-	-	-	-	-	-	-	-	-	1	-	5
Social Work	2	-	-	-	-	-	-	-	-	-	-	-	2
Sociology	2	-	-	-	-	-	-	-	-	-	-	-	2
Spanish, Italian and Portuguese	7	-	-	-	-	-	-	-	-	3	4	-	14
Speech and Theatre	3	1	-	-	-	-	-	-	-	2	-	-	6
Theoretical and Applied Mechanics	2	-	1	-	3	-	-	-	-	2	-	1	9
Urban Planning and Landscape Architecture	3	-	-	-	-	-	-	-	-	-	-	-	3

FELLOWSHIPS AWARDED (Continued) a/

DEPARTMENT	UNIVERSITY	INDUSTRIAL AND ENDOWED	FEDERAL										TOTAL
			National Science Foundation					U. S. Department of Health, Education and Welfare				NASA	
			Cooperative	Graduate	Engineering Trainee	Math Institute	Science Faculty	USPHS Predoctoral	USPHS Trainees	NDEA IV	NDEA VI		
Veterinary Medical Science	-	-	-	-	-	-	-	-	6	-	-	-	6
Zoology	4	-	2	-	-	-	2	4	-	-	-	-	12
TOTAL	325	76	33	38	56	47	9	19	37	49	7	27	723

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a/ This table is based on the number of fellowships awarded as distinct from the number of acceptances by awardees or from the number of fellows in residence. Because of declinations and attrition, numbers prepared on either of these latter bases would be lower. Declinations and attrition are anticipated in the awarding of University Fellowships, with the result that the number of awards is substantially in excess of the number of fellows in residence.

TABLE 6

COMPARISON OF AWARDS[a]

1964-65 and 1963-64

	1964-65	1963-64
Industrial and Endowed	76	119
Federal		
A. National Science Foundation		
Cooperative	33	55
Graduate	38	46
Engineering Trainee	56	--
Math Institute	47	49
Science Faculty	9	3
B. U. S. Department of Health, Education and Welfare		
USPHS Predoctoral	19[b]	38
USPHS Trainee	37[b]	127
NDEA IV	49	52
NDEA VI	7	8
C. NASA	27[c]	12
Total	398	509

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[a] In some cases, because of declinations and transfers, the number of awards will differ from the number of fellows ultimately in residence.

[b] Data are incomplete as of the date this report was compiled (June 25, 1964). Additional Industrial and Endowed and U. S. Public Health Service awards are expected to be announced. Awards of NSF Summer Fellowships for Teaching Assistants, not listed in the table, number 17 in 1964-65, compared with 27 in the preceding year.

[c] Of this number, fifteen are new awards and twelve represent a continuation of 1963-64 awards.

TABLE 7
FACULTY SUMMER FELLOWSHIP AWARDS, 1959-1964[a/]

DEPARTMENT	Summer Sessions 1959	1960	1961	1962	1963	1964	TOTAL
Accountancy	-	-	1	-	-	-	1
Anthropology	-	-	-	1	1	-	2
Architecture	1	-	-	1	-	-	2
Art	1	4	4	4	6	8	27
Astronomy	-	-	-	-	1	-	1
Botany	-	1	1	1	1	1	5
Chemistry and Chemical Engineering	2	2	-	2	1	2	9
Civil Engineering	-	-	2	2	-	-	4
Classics	-	-	-	2	-	-	2
Dance	-	-	-	-	1	-	1
Division of General Studies	-	-	1	-	2	-	3
Economics	-	-	-	3	4	2	9
English	4	5	4	4	7	7	31
Entomology	-	1	2	-	-	-	3
Finance	-	-	-	-	-	1	1
French	-	-	1	2	1	2	6
Geography	-	-	-	1	-	-	1
Geology	1	1	1	-	2	1	6
German	-	1	-	-	1	2	4
Government and Public Affairs	-	1	-	-	-	-	1
History	1	1	2	2	-	2	8
Industrial Administration	-	-	-	-	-	1	1
Journalism	-	-	-	-	1	1	2
Law	-	-	-	-	1	-	1
Management	-	-	-	1	-	-	1
Mathematics	1	1	-	-	2	3	7
Music	1	2	2	1	1	2	9
Philosophy	1	1	1	1	2	2	8
Physiology and Biophysics	1	-	-	-	-	-	1
Political Science	1	2	1	1	1	1	7
Psychology	1	1	-	1	1	1	5
Slavic Languages and Literature	-	-	1	1	1	2	5
Sociology	2	1	1	1	-	1	6
Spanish, Italian, and Portuguese	2	-	-	-	1	2	5
Speech	-	-	-	-	-	2	2
Urban Planning and Landscape Architecture	-	-	1	-	-	-	1
Zoology	1	2	1	1	-	2	7
Chicago Undergraduate Division	3	1	4	5	5	4	22
TOTAL	24	28	31	38	44	52	217

[a/] The figures represent awards and are not adjusted for the few resignations and declinations that ordinarily occur.

TABLE 8

GRADUATE SCHOOLS ATTENDED BY NSF FELLOWS

1962-63 -- 1964-65

UNIVERSITY	TYPE OF FELLOWSHIP						
	Graduate			Cooperative			Engineering Traineeship a/
	1962-1963	1963-1964	1964-1965	1962-1963	1963-1964	1964-1965	1964-1965
Illinois	47	46	38	48	55	33	56
Indiana	14	9	6	9	11	13	--
Iowa	15	10	4	16	10	4	6
Michigan	39	47	53	41	34	44	51
Michigan State	5	6	5	21	17	12	14
Minnesota	23	20	8	29	45	27	32
Northwestern	17	21	11	12	10	22	28
Ohio State	14	10	9	31	27	10	16
Purdue	21	21	14	34	28	21	49
Wisconsin	55	63	63	38	37	34	23
California (Berkeley)	167	198	217	39	60	54	49
Chicago	58	72	69	21	19	25	--
Harvard-Radcliffe	233	225	259	32	20	34	14

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a/ 1964-65 is the first year Engineering Traineeships have been offered. Illinois ranked second in the number of traineeships awarded. Massachusetts Institute of Technology, not included on this list, received 79.

TABLE 9

SOURCE OF FUNDS FOR FELLOWSHIPS[a]

1954, 1958, and 1963

YEAR	UNIVERSITY		INDUSTRIAL AND ENDOWED[b]		FEDERAL		TOTAL
	Amount	Percent of Total Aid	Amount	Percent of Total Aid	Amount	Percent of Total Aid	
1954	$115,975	50.0%	$105,483	45.5%	$ 10,400	4.5%	$ 231,858
1958	$246,000	40.1%	$225,900	36.8%	$141,545[c]	23.1%	$ 613,445
1963	$391,365	24.7%	$266,156	16.8%	$926,090[c]	58.5%	$1,583,611

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a/ Figures include dependency allowance to the extent known.

b/ Includes Woodrow Wilson Fellowships.

c/ Does not include NSF Mathematics Institute Fellowships.

TABLE 10

NUMBER AND AMOUNT OF FELLOWSHIPS AND ASSISTANTSHIPS PER ENROLLED STUDENT BY AREA[a]

1963

AREA	FELLOWSHIPS PER ENROLLED STUDENT		ASSISTANTSHIPS PER ENROLLED STUDENT		FELLOWSHIPS PLUS ASSISTANTSHIPS PER ENROLLED STUDENT	
	Number	Amount[b]	Number[c]	Amount[b]	Number	Amount[b]
Physical Sciences[d]	.189	$423.02	.651	$1,346.58	.840	$1,769.61
Engineering	.137	311.34	.570	1,353.29	.707	1,664.63
Social Sciences	.113	224.36	.364	773.97	.477	998.33
Biological Sciences	.161	436.41	.634	1,447.73	.795	1,884.14
Humanities	.137	284.38	.669	1,307.62	.806	1,592.00
Education	.051	115.56	.320	772.36	.372	887.91
Fine and Applied Arts	.057	95.33	.323	683.13	.381	778.47
ALL AREAS	.127	$282.13	.505	$1,101.66	.632	$1,383.79

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[a] Includes University, industrial and endowed, federal fellowships, and assistantships supported from both University and contract and grant funds.

[b] Amounts used for calculation do not include the monetary equivalent of tuition and fees which are waived, exempted, or paid by the sponsor.

[c] Assistantships are calculated on a one-half time basis.

[d] Does not include NSF Mathematics Institute.

TABLE 11

FELLOWSHIP SUBVENTION GRANTS TO DEPARTMENTS

1963-1964

DEPARTMENT	AMOUNT
Accountancy	$ 1,500.00
Aeronautical Engineering	1,500.00
Agricultural Engineering	500.00
Agronomy	1,500.00
Animal Science	750.00
Anthropology	5,750.00
Architecture	500.00
Art	1,000.00
Astronomy	500.00
Botany	1,000.00
Business	500.00
Business Administration	500.00
Ceramic Engineering	500.00
Chemistry and Chemical Engineering	45,750.00
City Planning	1,000.00
Civil Engineering	12,500.00
Classics	1,000.00
Communications	1,000.00
Dairy Science	250.00
Dance	500.00
Economics	5,500.00
Education	10,750.00
Electrical Engineering	7,000.00
English	12,000.00
Entomology	500.00
Finance	500.00
Food Science	750.00
French	2,000.00
Geography	$ 1,000.00
Geology	4,000.00
German	500.00
History	2,750.00
Law	1,000.00
Library Science	1,000.00
Linguistics	6,250.00
Mathematics	11,000.00
Marketing	500.00
Mechanical Engineering	3,458.00
Microbiology	1,000.00
Music	4,250.00
Nuclear Engineering	1,500.00
Philosophy	1,250.00
Physical Education	500.00
Physiology and Biophysics	2,250.00
Physics	14,500.00
Plant Pathology	500.00
Political Science	1,750.00
Psychology	9,500.00
Russian	1,000.00
Social Science	500.00
Social Work	500.00
Sociology	500.00
Spanish	5,000.00
Speech	2,500.00
Theoretical and Applied Mechanics	3,000.00
Zoology	4,500.00
	$202,958.00

TABLE 12

UNIVERSITY RESEARCH BOARD APPROPRIATIONS

1960-61 -- 1963-64

	July 1, 1960- June 30, 1961	July 1, 1961- June 30, 1962	July 1, 1962- June 30, 1963	July 1, 1963- June 30, 1964
For General University Purposes	$ 285,053	$ 338,911	$ 645,859	$ 501,166
For the Humanities and the Arts, Urbana	48,706	95,259	73,364	90,473
For the Social Sciences, Urbana	70,984	106,494	114,332	154,676
For Education, Urbana	5,600	40,582	4,760	2,030
For the Biological Sciences, Urbana	146,984	185,395	136,996	194,195
For the Physical Sciences, Urbana	146,301	245,625	219,700	314,556
For the Chicago Undergraduate Division	8,094	9,860	15,882	12,130
TOTAL	$ 711,722	$1,022,126	$1,210,893	$1,269,226
I. FOR GENERAL UNIVERSITY PURPOSES				
Administrative and General Services	$ 30,000	$ 23,140	$ 31,623	$ 42,740
Center for Advanced Study		48,074		
Contributions on Behalf of the University	500	500	500	500
Fellowships - Graduate Students	39,850	111,250	104,500	58,250
- Faculty	27,900	34,200	39,600	900
- Subvention			100,000	61,250
Provision of Special Facilities for Interdepartmental Use - Digital Computer Laboratory	148,470	11,790	300,000	246,695
Library	37,755	84,957	69,113	87,226
University Press	578	25,000	523	3,605
Subtotal	$ 285,053	$ 338,911	$ 645,859	$ 501,166

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1960- June 30, 1961	July 1, 1961- June 30, 1962	July 1, 1962- June 30, 1963	July 1, 1963- June 30, 1964
II. FOR THE HUMANITIES AND THE ARTS, URBANA				
Architecture	$ 1,900	$	$	$
Art	285	6,050	5,595	9,653
Classics	2,650	3,120	5,650	8,587
City Planning and Community Development	825	7,843	2,390	2,390
English	6,692	4,006	10,904	11,619
French	3,228	1,450	3,500	3,700
German	850	1,170	1,310	2,660
Journal of English and Germanic Philology	400	4,000	400	743
Journalism				3,567
Linguistics		5,850		
Music	16,267	25,023	14,323	21,971
Philosophy	1,900	5,451	1,500	1,225
Russian			681	1,000
Spanish, Italian, and Portuguese	6,956	8,371	15,423	11,511
Speech and Theatre	6,753	22,925	11,688	11,847
Subtotal	$ 48,706	$ 95,259	$ 73,364	$ 90,473

	July 1, 1960- June 30, 1961	July 1, 1961- June 30, 1962	July 1, 1962- June 30, 1963	July 1, 1963- June 30, 1964
III. FOR THE SOCIAL SCIENCES, URBANA				
Accountancy	$ 3,523	$ 1,112	$ 1,250	$
Advertising				1,440
Anthropology	5,675	7,631	10,848	6,959
Bureau of Economic and Business Research	4,000	2,000		7,100
Communications		8,048		2,100
Economics	2,980	8,323	6,424	7,271
Finance	1,161	2,211	445	1,050
Geography	4,170	4,002	5,500	1,084
History	23,280	33,666	40,924	60,548
Illinois Historical Survey	1,810	423		
Institute of Government and Public Affairs		750		
Institute of Labor and Industrial Relations	1,240	4,323	525	265
Law	700	4,250	10,728	12,900
Management			142	
Marketing	500	1,032		
Political Science	6,645	5,300	8,748	12,673
Psychology	11,850	18,536	17,161	31,557
Sociology	3,450	4,887	11,637	9,729
Subtotal	$ 70,984	$ 106,494	$ 114,332	$ 154,676

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1960- June 30, 1961	July 1, 1961- June 30, 1962	July 1, 1962- June 30, 1963	July 1, 1963- June 30, 1964
IV. FOR EDUCATION, URBANA				
Education	$ 3,100	$ 40,132	$ 3,500	$
Health and Safety Education				770
Physical Education	2,500	450	1,260	1,260
Subtotal	$ 5,600	$ 40,582	$ 4,760	$ 2,030
V. FOR THE BIOLOGICAL SCIENCES, URBANA				
Agronomy	$ 8,065	$ 7,084	$ 13,100	$ 14,600
Animal Science	3,000	15,444		6,995
Botany	26,144	18,815	31,596	27,381
Dairy Science	6,975	7,000		
Entomology	8,112	5,693	1,337	18,668
Food Technology	9,076	9,826	1,850	
Forestry				950
Home Economics	1,900	3,500		4,000
Horticulture	3,000			3,970
Life Sciences	2,234	3,080	1,495	3.035
Microbiology	25,915	33,878	23,500	54,099
Physiology and Biophysics	2,470	16,805	17,890	16,640
Plant Pathology	11,827	5,500	3,500	8,000
Veterinary Medicine	3,647	7,501	3,692	6,323
Zoology	34,619	51,269	39,036	29,534
Subtotal	$ 146,984	$ 185,395	$ 136,996	$ 194,195

	July 1, 1960- June 30, 1961	July 1, 1961- June 30, 1962	July 1, 1962- June 30, 1963	July 1, 1963- June 30, 1964
VI. FOR THE PHYSICAL SCIENCES, URBANA				
Aeronautical and Astronautical Engineering	$	$	$	$
Agricultural Engineering	7,000		3,900	3,900
Astronomy	4,100		25,050	32,000
Ceramic Engineering	6,000	4,000		
Chemistry and Chemical Engineering	45,634	42,820	111,530	103,730
Civil Engineering	1,250	26,350	20,035	34,675
Electrical Engineering	33,800	98,722	4,600	52,100
Geology	3,817	4,994	13,749	20,243
Mathematics		361		
Mechanical and Industrial Engineering		4,340		11,240
Mining, Metallurgy, and Petroleum Engineering	11,845	18,224	4,210	21,316
Nuclear Engineering			8,050	9,465
Physics	32,855	39,734	16,000	20,000
Theoretical and Applied Mechanics		6,080	12,576	5,887
Subtotal	$ 146,301	$ 245,625	$ 219,700	$ 314,556
VII. FOR THE CHICAGO UNDERGRADUATE DIVISION				
Biological Sciences	$ 3,715	$ 3,818	$ 1,998	$ 2,844
Library	2,504		1,000	
Physical Sciences	1,875		6,481	1,342
Social Sciences		2,795	3,686	5,434
Humanities		3,247	2,717	2,510
Subtotal	$ 8,094	$ 9,860	$ 15,882	$ 12,130

TABLE 13-A

STATISTICAL SUMMARY OF APPLICATIONS FOR RESEARCH GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1963 through June 30, 1964

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1964)					APPLICATIONS PENDING (as of June 30, 1964)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	13	$ 2,690,350	6	$ 1,566,650	$ 1,084,650	1	$ 91,740	6	$ 1,031,960
Humanities	15	1,788,222	3	73,220	72,602	3	1,386,548	9	328,454
Arts	9	45,497	8	22,270	22,270			1	23,227
Social Sciences, Pure	63	1,723,960	26	412,279	387,648			37	1,311,681
Social Sciences, Applied	37	928,371	16	264,241	269,567	4	126,276	17	537,854
Education	59	7,991,367	18	610,846	479,837	11	1,728,763	30	5,651,758
Biological Sciences, Pure	102	8,724,702	50	1,618,888	1,341,357	8	5,016,290	44	2,089,524
Biological Sciences, Applied	181	3,269,462	124	1,817,559	1,577,501	8	190,809	49	1,261,094
Physical Sciences, Pure	147	15,431,831	56	5,093,476	4,496,606	12	1,771,168	79	8,567,187
Physical Sciences, Applied	291	21,953,934	103	6,043,875	5,204,745	49	1,999,723	139	13,910,336
TOTAL	917	$64,547,696	410	$17,523,304	$14,936,783	96	$12,311,317	411	$34,713,075

TABLE 13-B

STATISTICAL SUMMARY OF APPLICATIONS FOR RESEARCH GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1962 through June 30, 1963[a]

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1964)					APPLICATIONS PENDING (as of June 30, 1964)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	19	$ 821,028	14	$ 679,961	$ 620,971	4	$ 127,397	1	$ 13,670
Humanities	8	254,605	6	222,025	259,978	2	32,580		
Arts	5	34,450	5	34,450	34,450				
Social Sciences, Pure	72	3,860,294	55	1,748,118	1,536,884	15	1,988,021	2	124,155
Social Sciences, Applied	27	1,370,324	24	761,934	851,366	2	603,297	1	5,093
Education	43	3,702,213	27	2,210,208	2,157,949	16	1,492,005		
Biological Sciences, Pure	94	4,645,263	80	3,815,979	2,491,126	13	474,804	1	354,480
Biological Sciences, Applied	170	3,500,334	139	2,518,080	2,082,530	28	915,124	3	67,130
Physical Sciences, Pure	157	15,727,158	102	11,134,569	8,504,704	53	4,482,249	2	110,340
Physical Sciences, Applied	269	16,588,320	188	11,931,449	9,704,794	78	4,515,767	3	141,104
TOTAL	864	$50,503,989	640	$35,056,773	$28,244,752	211	$14,631,244	13	$ 815,972

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[a] The occurrence of tabulating errors invalidates the version of this table showing the status of these applications as of July 1, 1963, appearing in the Annual Report of the Graduate College for 1962-63 as Table 15. Accordingly, that tabulation should be ignored.

TABLE 14

INSTITUTIONAL GRANT FUNDS, 1963-64

A. National Science Foundation Institutional Grant		
Received and assigned entirely to Center for Advanced Study		$ 75,000
B. Grants Provided in Conjunction with Fellowships		
Receipts:		
NASA	$ 30,000	
NSF Cooperative Fellows	65,000	
NSF Science Faculty Fellow	4,896	
NSF National Fellows	48,750	
NDEA Fellows	65,000	
Office of Education Fellows	8,750	
USPHS Fellows	46,375	
Woodrow Wilson Fellows	24,000	
TOTAL		$292,771
Allocations:		
Aeronautical and Astronautical Engineering	$ 1,982	
Chemistry and Chemical Engineering	20,870	
Coordinated Sciences Laboratory	4,435	
Electrical Engineering	1,982	
Civil Engineering	5,663	
Digital Computer Laboratory	21,088	
Education	10,000	
Electron Microscope Laboratory	1,050	
History	3,456	
Mathematics	3,963	
Mechanical Engineering	1,982	
Music	8,080	
Nuclear Engineering	1,982	
Physiology and Biophysics	4,248	
Physics	4,182	
Plant Pathology	9,905	
Microbiology	8,258	
Psychology	1,155	
Radio Carbon Laboratory	4,000	
Speech and Theatre	500	
Fellowships and Medical Fees	31,397	
Graduate College		
Graduate Record Examinations	9,191	
Special Travel	3,435	
Administrative, Research and Miscellaneous	3,660	

INSTITUTIONAL GRANT FUNDS (Continued)

Fellowship Subvention (See TABLE 11 for departmental allocations)*		
NDEA Fellowships	$ 26,000	
NSF Cooperative and Science Faculty Fellowships	27,708	
NSF National Fellowships	19,000	
USPHS Predoctoral Fellowships	18,125	
Office of Education Fellowships	3,500	
NASA Fellowships	6,000	
Woodrow Wilson Fellowships	8,125	
TOTAL		$274,922

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* Includes $94,500 Research Board Subvention.

TABLE 15

UNIVERSITY PRESS PUBLICATIONS[a]

May 1, 1963 to May 1, 1964

THE ILLINOIS STUDIES SERIES

Books Published

Bowen: Les Caracteristiques Essentielles de la Farce Francaise et Leur Survivance dans les Annees 1550-1620 (LL)
McShane: The Foreign Policy of the Attalids of Pergamum (SS)
Smith: A Humanist's "Trew Imitation": Thomas Watson's *Absalom* (LL)

Books in Process

Kahane; Pietrangeli: The Crater and the Grail (LL)
Kimball: Czech Nationalism: A Study of the National Theatre Movement 1845-83 (SS)
Reiman: Shelley's "The Triumph of Life": A Critical Study (LL)
Smith, et al: Herpetological Type-Specimens in the University of Illinois Museum of Natural History (BM)
Valdes: Death in the Literature of Unamuno (LL)
Spencer: Five Restoration Adaptations of Shakespeare (LL)

ILLINI BOOKS (Paperback Series)

Books Published

IB-8 Blum: Reference Books in the Mass Media
IB-9 Lewis: Life in a Mexican Village: Tepoztlan Restudied
IB-10 Bestor, Mearns, Daniels: Three Presidents and Their Books
IB-11 Znaniecki: Cultural Sciences
IB-12 Allen: The Legend of Noah
IB-13 Shannon, Weaver: The Mathematical Theory of Communication
IB-14 Caton (ed): Philosophy and Ordinary Language
IB-15 Siebert, Peterson, Schramm: Four Theories of the Press

Books in Process

IB-16 Randall: Constitutional Problems Under Lincoln
IB-17 Flandrau: Viva Mexico (edited by Gardiner)
IB-18 Herrick: Comic Theory in the Sixteenth Century
IB-19 Jackson (ed): Black Hawk
IB-20 Scott: Mexican Government in Transition

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[a] The titles shown in the Illinois Studies Series were financed partly from funds of the Graduate College and partly from the Press Revolving Fund. The non-serial publications were financed from the Scholarly Publications Account in the Graduate College and the Revolving Fund of the University Press. Grants from the Ford Foundation also aided in financing the scholarly publications program.

NON-SERIAL PUBLICATIONS

Books Published

Allen: Open Door to Learning
Arai (ed): Keys to the Trematodes of Animals and Man
Bates: Origins of Teapot Dome
Brown: The Galvanized Yankees
Chapin: Urban Land Use Planning
Clapp: The Future of the Research Library
Epstein: British Politics in the Suez Crisis
Gotshalk: Patterns of Good and Evil
Gusfield: Symbolic Crusade
Holley: Charles Evans, American Bibliographer

Books in Process

Abbott: Index Verborum in Ciceronis Rhetorica
Baldwin: On the Compositional Genetics of *The Comedy of Errors*
Boyce (ed): Regional Development of the Wabash Basin
Carrozzi (translator): Hydrogeology (by J. B. Lamarck)
Cattell, Warburton: Objective Personality and Motivation Tests
Chapin: Urban Land Use Planning (second edition)
Cronbach, Gleser: Psychological Tests and Personnel Decisions (second edition)
Edelman: The Symbolic Uses of Politics
Edelman and Fleming: The Politics of Wage-Price Decisions
Gardiner (ed): The Papers of William Hickling Prescott
Herrick: Italian Tragedy in the Renaissance
Hultzen, Allen, Miron: Tables of Transitional Frequencies of English Phonemes
Kelly (ed): Ultrasonic Energy--Biological Investigations and Medical Applications
Levine (ed): Malaria in the Interior Valley of North America (by Drake)
McColley: Slavery and Jeffersonian Virginia
McDermott: The French in the Mississippi Valley
McGregor: Southwestern Archaeology (second edition)
Peterson: Magazines in the Twentieth Century (second edition)
Van Dyke: Pride and Power
Burks (ed): Theory of Automata (Von Neumann)
Moles: Information Theory and Aesthetic Perception

TABLE 16

ENROLLMENT AND DEGREES CONFERRED
CHICAGO MEDICAL CENTER
1963-1964

Department	1963 Summer	1963 Fall	1963-64 Winter	1964 Spring	M.S. Degrees	Ph.D. Degrees
MEDICAL						
Anatomy	11	17	18	18	3	-
Biochemistry	44	56	59	57	2	7
Microbiology	15	25	24	23	3	3
Pathology	2	7	8	8	-	-
Pharmacology	13	19	19	18	2	1
Physiology	26	28	27	26	-	2
Surgery	6	13	12	12	5	-
Totals Majoring in Medical Sciences	117	165	167	162	15	13
DENTAL						
Histology (Dental)	8	10	10	8	7	-
Oral Pathology	3	3	3	2	1	-
Oral Surgery	3	5	5	5	2	-
Orthodontics	9	8	8	9	5	-
Pedodontics	3	2	1	2	2	-
Totals Majoring in Dental Sciences	26	28	27	26	17	0
PHARMACY						
Chemistry (Pharm)	22	26	27	25	2	2
Pharmacognosy	1	2	2	2	-	-
Pharmacy	11	13	13	13	4	-
Totals Majoring in Pharmacy Sciences	34	41	42	40	6	2
NURSING						
Psychiatric Nursing	-	6	5	5	-	-
Totals Majoring in Nursing Sciences	0	6	5	5	0	0
GRAND TOTAL	177	240	241	233	38	15

TABLE 17

CLASSIFICATION OF STUDENTS AT CHICAGO MEDICAL CENTER

ACADEMIC BACKGROUND

Doctor of Dentistry --------------- 23)
Doctor of Medicine ---------------- 17)
Medical Students ------------------ 11) -------- 88 (37%)
Dental Students ------------------ 4)
Bachelor of Science in Nursing ---- 5)
Bachelor of Science in Pharmacy --- 28)

Bachelor of Science --------------------------- 152 (63%)

PERMANENT RESIDENCE AT TIME OF APPLICATION

Arizona	1		Australia	1	
Connecticut	2		Canada	1	
Georgia	1		China	2	
Hawaii	1		Egypt	1	
Illinois	158		England	1	
Indiana	1		Germany	2	
Massachusetts	1		Ghana	1	
Michigan	3		Greece	1	
Minnesota	1		India	5	
New Hampshire	1		Israel	3	
New Jersey	2		Japan	1	
New York	9		Jordan	1	
North Dakota	1		Lebanon	2	
Ohio	4		Mexico	1	
Oregon	1		Nigeria	1	
Pennsylvania	8		Panama	1	
Tennessee	1		Paraguay	1	
Washington	2		Philippines	7	
West Virginia	2				
Wisconsin	6				
Utah	1				
TOTAL U.S.	207	(86%)	TOTAL FOREIGN	33	(14%)

TABLE 18

CHICAGO MEDICAL CENTER
CURRENT TRAINING GRANTS
ADMINISTERED THROUGH GRADUATE COLLEGE OFFICE
1963-1964

COLLEGE OF DENTISTRY	
Dean Schour	$ 52,403
Dean Schour	5,000
Dean Schour	34,705
Dr. V. James	42,833
COLLEGE OF MEDICINE	
Anatomy	
Dr. Reynolds	16,200
Dr. Schmidt	32,511
Biological Chemistry	
Dr. Winzler	57,720
Medicine	
Dr. Dowling	99,956
Dr. Samter	18,576
Dr. Schwartz	33,804
Occupational Therapy	
Miss Wade	15,676
Ophthalmology	
Dr. Kronfeld	39,535
Orthopedic Surgery	
Dr. R. Ray	29,736
COLLEGE OF MEDICINE (Continued)	
Otolaryngology	
Dr. Lederer	$ 34,307
Pediatrics	
Dr. Schulman	34,084
Pharmacology	
Dr. C. Smith	25,000
Dr. Schulman	67,249
Physiology	
Dr. Wolf	47,423
Psychiatry	
Dr. Sabshin	32,776
Dr. Sabshin	19,969
Dr. Gyarfas	80,050
Dr. Gyarfas	38,880
COLLEGE OF NURSING	
Dean Mullane	3,200
Dean Mullane	8,691
Dean Mullane	68,136
Dean Mullane	23,653
Dr. Krieger	5,304
TOTAL	$967,377

TABLE 19

APPROPRIATIONS BY CHICAGO MEDICAL CENTER SUBCOMMITTEE
OF THE
UNIVERSITY RESEARCH BOARD
1963-1964

DEPARTMENT		APPROPRIATIONS
I. MEDICAL SCIENCES		
Anatomy		$ 8,079
Biological Chemistry		20,550
Medicine		23,599
Microbiology		18,375
Obstetrics and Gynecology		1,785
Orthopaedics		10,639
Otolaryngology		5,418
Pathology		6,642
Pediatrics		12,187
Pharmacology		2,455
Physiology		4,525
Preventive Medicine		8,144
Psychiatry		12,844
Radiology		2,542
	Subtotal	$137,784
II. DENTAL SCIENCES		
Histology		$ 5,048
Oral Pathology		6,818
	Subtotal	$ 11,866
III. PHARMACY		
Chemistry (Pharmaceutical)		$ 5,180
Pharmacognosy		4,269
Pharmacy		10,704
	Subtotal	$ 20,153
IV. OTHER		
Graduate College Fellowship Committee		$ 20,300
Medical Sciences Library		1,750
Basic Computer IBM 1620 Model 2		89,568
Mass Spectrometer		48,430
	Subtotal	$160,048
	TOTAL	$329,851

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1964-1965

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GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

1964-1965

ANNUAL REPORT

GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

ADMINISTRATIVE STAFF

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EXECUTIVE COMMITTEE OF THE GRADUATE COLLEGE, 1964-1965

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Harold G. Halcrow, Professor of Agricultural Economics and Head of the Department of Agricultural Economics

William Joel Hall, Professor of Civil Engineering

Earl Reece Leng, Professor of Plant Breeding and Genetics

Milan Vaclav Novak, Associate Dean of the Graduate College at the Medical Center, Chicago; Professor of Microbiology and Head of the Department of Microbiology

David Pines, Professor of Physics and Electrical Engineering

Herbert Stern, Professor of Botany

Louis Bemis Wetmore, Professor of Urban and Regional Planning and Head of the Department of Urban Planning and Landscape Architecture

In Appreciation

HERBERT EDMUND CARTER

The faculty of the Graduate College of the University of Illinois wishes to express its deep appreciation of the leadership given by Acting Dean Herbert E. Carter to graduate education and research at the University during the past two years. Already heavily burdened by administrative responsibility for one of our largest and most distinguished departments, he unselfishly undertook the additional duties of the deanship at a time of critical need. And under his wise direction, the Graduate College has made highly significant advances in its instructional and research programs.

One of his major achievements has been the encouragement of departments to develop effective control over admission to graduate study -- partly through a uniform procedure of departmental screening of applicants and partly through the establishment of higher standards of admission in many fields. Thus the quality of the graduate student body has been improved and the necessary limitation on enrollment accomplished.

Another important contribution has been his effective efforts to find solutions to the many difficult problems that beset the Digital Computer Laboratory during his first year in office. Largely as a result of his guidance, the University now has a greatly strengthened organization for computer education, research, and service. In fitting recognition of these improvements, and of the Laboratory's broadening interdisciplinary role in the University, the Board of Trustees recently authorized the change of its name to "Department of Computer Science."

Dean Carter has supported the addition of several new interdisciplinary centers to the Graduate College during the past two years: the Water Resources Center, the Center for Human Ecology, the Center for International Comparative Studies, and the Survey Research Laboratory. These organizations add new dimensions to the University's scholarly endeavor -- especially in the social sciences -- and serve to bring into fruitful interaction investigators from different departments and colleges who have common research interests.

Another notable undertaking has been the establishment of the Joint Advisory Committee on Graduate Programs at Chicago Circle. As the originator and chairman of that Committee, Dean Carter has given timely encouragement and support to the faculty members on whom the University relies for the creation of a distinguished center of learning in Chicago. In historical perspective, the stimulation given to this group might well be viewed as having been one of the most significant developments initiated at the University in recent years.

Notwithstanding the heavy responsibilities of his two administrative positions in the University, Dean Carter has continued his influential participation in national scientific affairs. As chairman of the Committee on Structure and Membership of the National Academy of Sciences, he had an important role in bringing about the recent revision of the By-Laws of the organization. He is also a member of the National Science Board, the governing body of the National Science Foundation. In these and other important national relationships, his outstanding contributions have reflected great credit upon the University of Illinois.

For all of these distinguished achievements, the faculty of the Graduate College wishes to express to Dean Carter its sincere admiration and high esteem. In acknowledging our great indebtedness and gratitude for his effective leadership during a critical period, it is indeed reassuring to know that the Graduate College and the University will continue to have the benefit of his wise counsel and unsparing dedication to their welfare.

In Appreciation

ROBERT MIZE SUTTON

The Executive Committee of the Graduate College expresses its deep appreciation for your devoted concern for the work of the Graduate College during the decade of the College's most rapid growth and expansion. Your guidance of students who have come to your office seeking advice or who have addressed formal petitions to you has always been marked by sympathy, understanding, and fairness. The evolution of the procedures and rules of the Graduate College during your tenure has had important direction from you; changes made under your thoughtful guidance will benefit graduate work at Illinois for many years to come.

The work of every committee of the Graduate College during your tenure has borne the imprint of your interest, either through your service as a committee member or through your study of the reports made by committees to the College. You have represented the College and the University at many meetings of national professional associations concerned with graduate work, and in this way your influence on academic life and graduate work has spread far beyond the limits of the University of Illinois campus. In these and in many other ways you have exerted profound and always beneficial influences on graduate work and graduate students. Your contributions are firmly integrated into the structure and policies of the Graduate College, and many a future graduate student will benefit from them.

Your presence in the Graduate College will be sorely missed, not only by the Executive Committee and by the staff, but also by all the members of the faculty who have sought your advice and your generous help and by the many students who have come to you for assistance. May your new position as Director of the Illinois Historical Survey provide you with many reasons to join the Executive Committee in the futher development of graduate work at the University of Illinois.

I. THE ADMINISTRATION OF GRADUATE EDUCATION

A. Introduction

To a large extent the many activities and programs of the Graduate College are repeated from year to year with recognizable continuity, though often with important changes and improvements. The quality of its educational and research programs continues to be its primary concern. As the Graduate College nears the point of saturation in its ability to absorb increasing numbers of new students into its various programs and curricula, more careful attention must be given to recruiting the best possible candidates for advanced study, while at the same time providing the opportunity for the best possible education under the most favorable circumstances possible.

In order to produce this result the Graduate College has enlisted the cooperation of all graduate departments in screening applications for admission, and the response of the departments to this request for voluntary control of enrollment has been most gratifying. We recognize the need for additional and continuing research which will attempt to relate preadmission variables to successful achievement in graduate study at this University. It is too early to predict what success we may have in such an endeavor, but efforts along this line will continue.

The Graduate College has long recognized the general value of interdisciplinary programs for graduate education, and has contributed leadership and guidance to the development of such programs. During the past year steps were taken to establish an International Comparative Studies Center and a Center for Human Ecology as units of the Graduate College. This action followed the similar creation in the past year of a Water Resources Center and a Survey Research Laboratory, both administered by the Graduate College. In view of the present trend toward the establishment of a horizontal framework in the support of research which cuts across existing departments and disciplines, this development is expected to command the attention of the Graduate College to an ever-increasing extent in the years ahead.

Of great concern to this College is the establishment of graduate work at the Chicago Circle campus beginning in September, 1967. Discussed at some length in Part V of this report, it is only necessary to record here the conviction that this is a very crucial development in the life of the University and to reaffirm the support of the Graduate College for this logical innovation.

B. Enrollment

A total of 10,116 persons registered in the Graduate College in 1964-65. This is a 9 per cent increase over the 9,280 figure of a year ago, and nearly double the 5,104 student enrollment ten years ago in 1955-56. A detailed comparison of enrollment figures by department for a three-year period will be found in Table 1.

Applications for admission and the granting of permits to enter in the coming academic year, 1965-66, are running far ahead of a year ago, necessitating even more stringent screening on the part of the departments and the Graduate College. The increased body of applicants has caused a number of administrative problems, but should assure a student body of the highest possible quality.

C. Degrees Conferred

In 1964-65, the Graduate College conferred 2,482 degrees at the Urbana campus and a total of 70 degrees at Chicago Medical Center. A summary comparison of these degrees with those awarded during 1961-62 is given below:

Urbana	1964-65	1961-62
Ph.D.	435	406
Other doctoral degrees	40	20
A.M. and M.S..	1,382	1,111
Other master's degrees	573	401
Advanced Certificates	52	29
Urbana sub-total	2,482	1,967
Chicago Medical Center		
Ph.D.	18	18
M.S.	52	38
Chicago sub-total	70	56
GRAND TOTAL, Urbana and Chicago	2,552	2,023

1. Some Comparisons with Other Institutions

a. Illinois Ranks Second Nationally in Numbers of Degrees Conferred in Engineering. University of Illinois ranked second in the nation in the number of bachelor's and doctor's degrees conferred in engineering in the last year according to the 16th annual survey of the *Journal of Engineering Education*, compiled by Harold A. Foecke of the U. S. Office of Education.

The top five institutions in each category were: bachelor's degrees -- Purdue 889; Illinois 818; Michigan 637; Georgia Tech. 600; Pennsylvania State 565; for doctor's -- Massachusetts Institute of Technology 150; Illinois 131; Stanford 94; Purdue 83; Michigan 75.

b. Illinois Ranks Third Nationally in Advanced Degrees Conferred in Chemistry. University of Illinois ranked third in the academic year 1963-64 for the number of advanced degrees conferred in the field of chemistry and chemical engineering, according to a survey by the American Chemical Society.

During the year under study Illinois conferred 50 master's degrees and 50 doctorates ranking closely behind Massachusetts Institute of Technology and the University of California (Berkeley). The report shows that in the last 12 years the University of Illinois has conferred a total of 2,233 degrees in chemistry and chemical engineering, 978 at the bachelor's level, 500 master's and 755 doctorate degrees.

c. Illinois Ranks Third Nationally as Source of Students Entering Medical Schools. The University of Illinois is the nation's third largest source of students entering medical schools, according to a study published by the Association of American Medical Colleges.

Harvard, Michigan, and Illinois rank in that order among the 25 institutions which provide an average of 28 per cent of all medical freshmen, the report stated.

d. Illinois Ranks Fourth in Nation in Production of Doctorates During 10-Year Period. The University of Illinois ranks fourth among all institutions in the United States in the number of doctorate degrees granted during the 10-year period, 1953 to 1963, according to a report made by the Office of Institutional Research in Washington.

Columbia University leads all institutions for numbers of doctorates having granted 5,551 during the period, California at all campuses ranks second with 5,331. Other leaders are Wisconsin, 3,825; Illinois, 3,640; Harvard-Radcliffe, 3,625; Michigan, 3,095; New York University, 2,926; and Ohio State, 2,612.

D. Courses, Curricula, and Graduate Faculty

During the past year the Executive Committee approved a new degree program leading to the Doctor of Education in Art Education. It also endorsed recommendations that an International Comparative Studies Center and a Center for Human Ecology be organized as units of the Graduate College. See Part III for a report of these associated enterprises.

The Subcommittee on Graduate Faculty has received 65 nominations for full standing and 70 for master's standing on the graduate faculty since the last annual meeting. Of these, 60 were approved for full standing and 67 for master's standing. Of those recommended for membership at Chicago Circle, 18 individuals were approved for full standing and 19 for master's standing.

One hundred and seventeen new and revised course proposals were considered by the Subcommittee on Courses and Curricula during the past year. Seventy-one new and 23 revised courses were approved and four courses were reinstated. Eleven proposals were denied and eight are still pending. In addition to its review of course and curricula matters, the subcommittee this year has considered carefully the need for additional degree programs at the doctoral level, other than the Ph.D. The subcommittee is persuaded that such a need exists and will be reporting its findings to the Executive Committee in the near future.

E. Institutional Cooperation

1. Traveling Scholar Program. Now in its second year of operation, the "Traveling Scholar" program enables graduate students from 11 institutions to arrange for short term (one semester or two quarters) study or research on the campus of another of the participating universities. Although the "red tape" is slight, and the possibilities for enriching the training of graduate students great, so far not many of our graduate students have availed themselves to the opportunities present in this program.

F. Graduate Record Examination Suspension

Following a study made in 1964, a decision was made to suspend the Graduate Record Examination as a general requirement of the Graduate College and to suspend also the administration of the examination by the Graduate College. It was found that the contribution of the GRE in predicting student success in graduate work and evaluating applicants for fellowships was nominal compared with that from other sources of information, such as grade-point averages and instructors' ratings. Further, it appeared that by the time these scores were available, their usefulness was all but lost.

A subcommittee of the Executive Committee of the Graduate College continues to give attention to criteria for admission of graduate students. The problem is a serious one, since the number of applicants continues to grow, yet adequate predictors are not yet available.

II. APPOINTMENTS AND AWARDS FOR GRADUATE STUDENTS

A. General

1. Fellows in Residence, 1964-65. During the academic year, more than 850 students held fellowships administered by the Graduate College, representing an increase of approximately 12 per cent over the previous year. Table 3 lists the many types of awards in force during the period and reports the number of persons who were recipients of each type of award. Twenty-two per cent of the graduate fellowships were supported by University funds, 16 per cent by industries and foundations, 1 per cent by the State of Illinois, and 61 per cent by the federal government. Comparative data for 1963-64 were 27 per cent supported by University funds, 17 per cent by industries and foundations, and 56 per cent by the federal government.1/

2. Applications for Aid, 1965-66. More than 7,100 applications for financial assistance were received for the 1965-66 year. Table 4 shows the number of persons who, by the spring of 1965, had applied for financial aid for 1965-66. The kinds of financial aid sought by students in the various areas of instruction are indicated and figures for the preceding year also are given. The total number of applications for all forms of aid was up 9 per cent over the preceding year. The number of fellowship applications, about 5 per cent higher than a year earlier, was between five and six time as great as the total number of fellowships available. As a result, extensive screening operations were required for selecting the recipients of awards.

B. University Fellowships

1. Selection of Fellows. As during recent years, each department was assigned a maximum number of applicants it could recommend for University Fellowships and University Teaching Fellowships, this number being roughly proportional to the highest number of awards to students in the department during any one of the three preceding annual competitions. However, no department was assigned a quota less than three. The quota system produced a total of 907 applications recommended by departments as compared with 966 applications in 1963-64 and 909 during 1962-63.

1/ Fellowships granted by the State of Illinois were awarded for the first time in 1965-66.

Recommended applications were screened by one or another of the five subcommittees of the Graduate College Fellowship Committee: I, New Students in Pure Physical and Biological Sciences (Professor D. M. Ginsberg, Chairman); II, New Students in Applied Physical and Biological Sciences (Professor S. Seshu, Chairman); III, New Students in Education, Pure and Applied Arts, and Humanities (Professor V. E. Bowen, Chairman); IV, New Students in Pure and Applied Social Sciences (Professor E. G. Lewis, Chairman); and V, Old Students (Professor L. R. Chesney, Chairman).[2]

As in previous years, the final screening of applications in the University Fellowship competition was made by the Graduate College Fellowship Committee, during 1964-65 composed of:

Marvin Frankel, Chairman
E. H. Davidson
Murray Edelman
J. R. Frey
L. P. Hager
L. A. Hiller
J. R. Laughnan
D. E. Mapother
D. R. Peterson
M. E. Van Valkenburg
J. H. Walter
R. S. Wolfe

2. Number and Distribution of Fellowship Awards. A total of 344 University Fellowships (including Teaching Fellowships) was awarded to students for 1965-66. The distribution of these awards among the various departments of the University is reported in Table 5. In determining the total number of awards to be made, it is necessary that the number of acceptances and declinations be anticipated approximately. This procedure helps to insure a balance between the resources available for fellowship support and the claims made against them. The acceptance rate for 1965-66 was 90 per cent for students already on the campus and 43 per cent for new students. The rate over-all was about 60 per cent. This figure is slightly below the figure for the preceding year (61 per cent) but exceeds that of 1963-64 (57 per cent).

3. Changes in the University Fellowship Program. a. Beginning in 1964-65, the stipend of the University Fellowship was increased from $1,500 to $1,800 for the academic year and from $1,875 to $2,250 for the academic year plus the summer session. These increases are in line with stipend increases that have recently taken place for other categories of awards, such as the Woodrow Wilson Fellowships and some types of federally-supported fellowships. Noteworthy also is the increase, effective in the fall of 1965, in the number of University Fellowship authorized in the budget. The number will rise from 175 to 200. These changes should help appreciably to sustain and extend the ability of our graduate departments to attract highly qualified and promising students.

b. A new category of awards under the title "Fellowships in the Creative and Performing Arts" was introduced in 1964-65 and seven awards were made for that year. For 1965-66 the number of awards was increased to ten. The new program resulted from a growing recognition that the traditional standards of scholarship such as are emphasized in the selection of University Fellows are not always well-suited for measuring achievement in the arts. Hence, the new program gives relatively greater emphasis to creative achievement and promise in the selection of awardees. Experience to date suggests that the selection and award process has functioned smoothly and that the program helps to alleviate a definite and pressing need. Students majoring in any of the following areas are eligible to compete for one of these awards: Architectural Design; Painting and Printmaking; Advertising Design and Industrial Design; Landscape Architecture; Dance; Piano; Organ and Harpsichord, Voice, Strings, Winds, Composition; and Theatre. Departmental nominations for the new awards are reviewed by the subcommittee (of the Graduate College Fellowship Committee) in Education, Pure and Applied Arts, and Humanities. It in turn makes recommendations directly to the Dean of the Graduate College.

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[2] "Old" students are those previously registered in the Graduate College of the University of Illinois. "New" students are those not previously registered in the Graduate College.

4. Illinois College Fellowships. Under this program, begun in 1960-61, each four-year private college in the state of Illinois which awarded baccalaureate degrees to 12 or more persons who subsequently received doctoral degrees from the University during the past 20 years was invited to nominate one of its outstanding seniors for a College Fellowship. Eight colleges qualified for these awards, and seven nominated candidates who were approved by the departments in which they wished to study. Five of the seven candidates accepted College Fellowships for 1965-66.

Each four-year college in the state which did not qualify under the terms of this program was invited to nominate two candidates for a tuition and fee waiver. The Graduate College continues to receive favorable responses to these announcements, and it is hoped that the program will bring excellent students to the University as well as contribute to cordial relations with other institutions in Illinois.

5. Summer Fellowships for Teaching Assistants. To encourage more students to become college teachers, and to give special consideration to the graduate assistant who is gaining experience as a college teacher, the Graduate College each year awards a substantial number of Summer Fellowships for Teaching Assistants. Graduate students who have held teaching assistantships for at least half-time during the preceding academic year, who have earned not less than two units during that period, and who have demonstrated superior scholarship are eligible to apply. Eighty-four awards, each carrying a stipend of $450, were made for the summer of 1965.

6. University Tuition and Fee Waivers. The number of applicants recommended by the many departments for University Fellowships is much in excess of the number of fellowships available, and as a result many excellent applicants are unsuccessful in the competition. Not all of these students can be offered assistantships, and if no other form of support were available, many of them would be unable to attend the University. For several years the Graduate College has dealt with this problem by offering these students Tuition and Fee Waivers. Approximately 24 per cent of such offers for 1965-66 were accepted.

Two separate Tuition and Fee Waiver competitions, distinct from the fellowship competition, were held in the Spring of 1965. Recommendations for these awards were made to the Graduate College by the departments. Because of the limited number of waivers available and the very large number of potential applicants, departments were assigned nomination quotas. The applicants, although not required to meet standards quite so high as those established for fellowship applicants, were expected to have records showing significant academic achievement and promise.

The Tuition and Fee Waiver is a critical element in the Graduate College's financial aid program. Though of nominal monetary value, it often affects decisively the ability of well-qualified students to initiate or continue work towards a higher degree.

C. Fellowships Supported by Outside Agencies

1. General. Expansion of traineeships to include the biological and physical sciences and mathematics represents a major new addition to federal programs. A further expansion to the area of social studies will be made for 1966-67. The NSF Cooperative Fellowships will be abandoned except for those students completing two-year awards. Funds currently allocated will be divided between graduate fellowships and traineeship programs. The increase in fellowship support through the Office of Education will significantly alter the fellowship support structure and promises substantial increases in funds in areas not previously well supported.

2. Types of Fellowships Awarded. The several types of fellowships supported by outside agencies are listed in items II, III, and IV in Table 3, which presents information for 1964-65. Data on awards for 1965-66 are not yet available (as of June, 1965) for certain of these categories, but are presented below for others of them, along with comparable figures for the preceding years.[3]

Comparison of Awards[a]

	1965-66	1964-65
National Science Foundation		
Cooperative Fellowships	33	33
Graduate Fellowships	38	38
Engineering Traineeships	86	56
Mathematics Institute Fellowships	44	47
Science Faculty Fellowships	8	9
Summer Fellowships for Teaching Assistants	43	17
Other		
NDEA Title IV Fellowships	89	45
NASA Traineeships	42	27

Several types of awards show substantial increases for 1965-66 as compared with 1964-65. The rise to 86 in the number of NSF Engineering Traineeships results from a new grant to the University to support 44 Trainees in 1965-66 and a renewal of the 1964-65 grant at three-fourths the maximum permitted of the original level. The success of the University in the competition for NSF Summer Fellowships for

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[3] The tabulation, it should be noted, relates to awards rather than fellows in residence. The latter figure ordinarily tends to be lower because of attrition and declinations.

[a] Figures include renewal awards for programs having renewal arrangements. In the NSF Cooperative, Graduate and Trainee programs, renewals are possible for the first time in 1965-66.

Teaching Assistants is shown by the substantial increase in the number of these awards. More NSF Summer Fellowships were won by this institution than any other single university.

The increase in NDEA Title IV Fellowships, each of which is for three years, reflects the overall national expansion of this Office of Education program. Of the 89 awards for 1965-66, 65 are new. The remainder are renewals of awards that already have been in force for one or two years. A significant change should be noted in the procedure for making these awards. In the past, individual departments or programs in the University submitted proposals to the Office of Education for competitive review. Successful proposals then received quotas of fellowships for subsequent award to students. Henceforth a single proposal covering all participating departments is to be submitted for the University by the Graduate College. If the proposal is successful, a quota of awards will be made to the University for allocation by the Graduate College among the departments.

The 42 National Aeronautics and Space Administration Traineeships for 1965-66 represent a continuation in the buildup of that program. Like the NDEA Fellowships, these traineeships are for a three-year period. Of the 42 traineeships, 15 are new. An additional 15 were originally awarded under a grant to the University for 1964-65 and will be in their first renewal year in 1965-66. The remaining 12 are supported under a 1963-64 grant and will be in their second renewal year.

Rank order data on the number of NSF Cooperative and Graduate Fellowships and Engineering Traineeships granted to the 15 institutions receiving the most awards are presented in Table 7. Figures shown for Graduate and Cooperative Fellowships indicate new awards only, as data on the number of renewals at other institutions were not available. The Engineering Traineeship figures, however, include both new and renewed awards. Illinois tied with Cornell in twelfth place in the number of Graduate awards; it ranked first in the number of Cooperative awards and fourth in the number of Traineeship awards.

D. Sources and Distribution of Financial Aid

Over the past eleven years, fellowship support from University funds has almost quadrupled, rising from $115,975 in 1954-55 to $430,050 in 1964-65. That from industrial and endowed sources approximately tripled, moving from $105,483 to $301,598. Over this same period, support from federal funds administered through the University rose from an almost negligible level to almost $1,3 million. As a result, the per cent of total support from University funds has fallen substantially from 50 per cent to 21.5 per cent. More than 60 per cent of the total fellowship support provided to graduate students at the University now comes from federal sources. These rather dramatic changes are summarized in Table 8.

The distribution of financial aid to graduate students in the several major areas of study is presented in Table 9, which covers aid in the form of both fellowships and assistantships. Because of the volume of federal support and the emphasis of federal programs, fellowship aid per enrolled student is, as one might expect, highest in the biological and physical sciences. The dearth of outside support, federal and other, in education and in the arts accounts for the markedly contrasting situation in those areas. On a per-student basis, only one-third to one-half as much fellowship aid is available in these areas as in the sciences. Assistantship aid is less unevenly distributed. Again, however, education and the arts, along with the social sciences, stand near the bottom of the scale. A comparison on the basis of fellowship and assistantship aid combined shows the biological and the physical sciences at the top, with the social sciences, education and the arts much below them. It will be seen that, for all areas together, dollar support through assistantships is almost four times as great as through fellowships.

E. Fellowship Subventions to Departments

Effective in September, 1962, the Graduate College adopted a policy of granting the sum of $500 per fellow per year to the major department of each University Fellow. Similar grants are made to the major departments in which students hold NASA, NSF Cooperative and Graduate, Woodrow Wilson, NDEA Title IV, and USPHS Predoctoral Fellowships. The arrangement will be extended in 1965-66 to cover the new NSF Engineering Traineeships as well. Funds for subventions have come from the University Research Board and from the institutional allowances provided to the University by the agencies which sponsor the awards listed above. Departments are permitted to use subvention funds for any of a wide variety of purposes connected with research and advanced instruction. Table 10 reports amounts granted to various departments as fellowship subventions during 1964-65.

F. Future Considerations

The increase during the past few years in the size and number of federal fellowship programs, each with its own special eligibility conditions and other requirements, has created problems in the administration of the University Fellowship Program and in the coordination of the several types of programs. These problems are receiving attention, and ways for overcoming them are under consideration. Early in the 1965-66 academic year the Graduate Fellowship Committee will undertake a comprehensive review of our fellowship policies and procedures and seek means to improve and strengthen them.

III. SUPPORT OF RESEARCH

A. The Center for Advanced Study

The Center for Advanced Study, activated in 1959, continues to be a successful means for recognizing and encouraging research, creative achievement, and scholarship by the University's outstanding professors.

1. Members. The newest member, appointed for a five-year term beginning September 1, 1964, is Professor Sol Spiegelman, professor of microbiology. He joined Professors John Bardeen, electrical engineering and physics; Joseph Doob, mathematics; Harry Drickamer, chemistry and chemical engineering; Julian Steward, anthropology, and Alexander Turyn, classics.

2. Associate Members, 1964-65. Eleven scholars were named to associate membership in 1964-65. They were Alfredo Ang, associate professor of civil engineering; Arthur E. Barker, professor of English; Margaret Chandler, professor of sociology and anthropology at Chicago Circle; Evelyn Frank, professor of mathematics at Chicago Circle; Donald R. Hodgman, professor of economics; Georgiana Jagiello, professor of medicine at the Chicago Medical Center; J. Robert Kelly, professor of music; David Lazarus, professor of physics; Lee A. Rubel, professor of mathematics; Sundaram Seshu, professor of electrical

engineering and research professor of the Coordinated Science Laboratory; Michio Suzuki, professor of mathematics; Nelson Wax, professor of electrical engineering. More explicit descriptions of their particular fields of interest will be found in the Annual Report of 1963-64, and in the brochure, "The Center for Advanced Study."

3. Associate Members, 1965-66. Appointment of 12 associate members for 1965-66 was recommended by the Executive Committee of the Center after careful consideration of all applications:

Associate Professor Lejaren A. Hiller of the School of Music for the year to carry out the composition of a large scale musical work with the new programs for the IBM 7094 and the ILLIAC II.

Professor Harold M. Hyman of the Department of History for the year to carry out research on "An Examination of the Radical Republican Dilemma: Self Help v. Government Paternalism for Negro Freedmen, 1861-1877."

Associate Professor Houssam M. Karara of the Department of Civil Engineering for the year (half-time) to continue research in photogrammetry (spatial aerotriangulation in particular).

Professor Therald Moeller of the Department of Chemistry and Chemical Engineering for the year to complete revision of his book, "Inorganic Chemistry;" to reorganize his research program of the studies in the chemistry of sulphur, phosphorus and nitrogen; and to complete background work essential to preparation of a monograph dealing with the less familiar elements.

Professor Kazuo Ono of the University of Tokyo, Japan, as a Visiting Professor in Physics at Chicago Circle for the year to establish a research program using his intimate and learned knowledge of the Mössbauer technique at low temperatures.

Professor Robert Ornstein of the Department of English for the first semester to complete a book on Shakespeare's history plays begun three years ago.

Professor Ernst A. Philippson of the Department of Germanic Languages and Literatures for the second semester to start a survey of material for an encyclopedia presentation (actually a small book) on the history of Germanic religion; forty of these books will make up a volume of contemporary research in Germanic philology to be called *Grundlagen der Germanistik*.

Professor Louis Schneider of the Department of Sociology for the first semester to gather material for several papers and/or a book on (1) the probelm of symmetry; (2) the sphere of the conceptualization of indirection, intermediacy, the attractiveness of intermediates, the ignorance-knowledge compound, and transmutation mechanisms; and (3) the role of ignorance in the functioning of social systems or institutions.

Professor Charles H. Shattuck of the Department of English for the second semester to engage in research for a book-length study of Edwin Booth's *Hamlet*.

Professor Raymond P. Stearns of the Department of History for the second semester and summer of 1966 to complete the organization and get well under way the writing of a book, *Science and the English Colonies, 1570 to 1770*, for which he has been gathering material for twenty-five years.

Professor William F. Vinen of the University of Birmingham, England, as a Visiting Professor in the Department of Physics for one semester to give a series of lectures, possibly a special topics course for credit.

Professor John C. Wheatley of the Department of Physics for the year (half-time) to devote his full efforts to research with his group on the properties of liquid helium-three at very low temperatures.

B. Faculty Summer Fellowships

This program, initiated by the University Research Board in 1958, continues to be very attractive to younger members of the faculty. It provides a modest, tax-exempt stipend which permits the recipient to devote full time to scholarly endeavors during the summer months. During 1964-65, 86 applications were received, 21 from the Chicago Circle campus and 65 from the Urbana campus. A total of 54 awards were offered for the summer of 1965. Table 6 reports the distribution of awards by departments since 1960.

Although the University Research Board has substantially increased its support of this program over recent years, the number of meritorious proposals still exceeds the number of available awards. The existence of the program increases the attractiveness of Illinois as a university where younger faculty members are encouraged in creative scholarship and productive research. Additional funds are needed for its further expansion.

Faculty Summer Fellowship Committee:
1964 - 1965

N. A. Graebner, Chairman

J. T. Flanagan

Van Miller

F. J. Nock

Frederick Sargent, II

Mark Sprague

S. P. Wyatt

C. University Research Board

1. Appropriations Made. The appropriations of the University Research Board during the year ending June 30, 1965, reached a new high of $1,549,325, largely as a result of the funding of a substantial portion ($208,804) from certain institutional grants accruing to the Graduate College. Appropriations during the preceding year from the unaugmented resources of the Board were $1,269,226. In recent years approximately half of the Board's appropriations have been for general University programs of vital importance to graduate work, particularly the fellowship programs, the development of the high-speed computational facilities now incorporated in the Department of Computer Science, and certain library acquisitions. During the past year appropriations for these needs rose to $784,585, of which the largest part ($499,200) was for the fellowship programs (see Table 11).

The total of the appropriations for the research programs of the faculty, made in response to 247 requests by faculty members, decreased very slightly from that of the previous year (from $768,060 to $764,740). There were substantial changes in the distribution of the grants among the different areas, however (see Table 11). Thus, there were increases in the amounts made available to the humanities and arts (from $90,473 to $112,662) and social sciences (from $154,676 to $201,484) and decreases in the appropriations to the biological sciences (from $194,195 to $165,310) and the physical sciences (from $314,556 to $257,573). A substantial portion of the aid to faculty members in the humanities, arts, and social sciences continued to be in the form of the provision of graduate research assistants. As indicated in Table 11, stipends for some 33 FTE assistants were provided in these areas, and 4.3 in all other areas; in the dollar column of Table 11 these appropriations are entered at $4,400 per FTE assistant for the academic year. These funds support a considerable number of highly qualified graduate students in addition to providing staff members with needed help in research.

Many of the Board's appropriations are for the purchase of research equipment and materials needed by new faculty members to assure the continuity of their research programs when moving from another location to Illinois. The dollar amounts of such needs ordinarily are greater for scientists than for scholars in the humanities and the arts, but most scientists soon are able to obtain outside support (see Tables 12A and 12B) so their needs are of shorter duration. As the University continues to grow, and as the completion of new buildings makes possible the needed enlargement of the faculty, the number of such requests to the Board is certain to increase.

The membership of the University Research Board during 1964-65 was as follows:

H. E. Carter, Chairman
H. G. Drickamer
H. W. Hake
R. K. Mautz
A. V. Nalbandov
N. M. Newmark
M. V. Novak
Sherman Paul
C. P. Slichter
H. R. Snyder, Secretary
Sol Speigelman

2. Review of Applications for Research Grants and Contracts and of Gifts for Research. The number of applications to outside agencies, principally those of the United States Government, for awards, grants, and contracts in support of research and creative scholarship at the University has continued to increase, the total being 988 for the year ending June 30, 1965, as against 917 for the preceding year. Most of these applications are for research programs of individual faculty members, but some relate to the support of groups of faculty members or of entire laboratories or departments (e.g., Coordinated Science Laboratory, Materials Research Laboratory, Department of Computer Science) and a few (but an increasing number) pertain to building programs, usually on a matching funds basis, to equipment programs, and to the fellowship and traineeship programs of the various federal agencies. All support resulting from such programs has the effect of expanding research opportunities on the campus, and the summaries of Tables 12A and 12B include them along with the applications of individual faculty members. In the past five years, the total amount requested of external agencies has risen from $21,624,000 (627 applications submitted during the year ending June 30, 1960) to $70,280,033 (the 988 applications of the year ending June 30, 1965). A substantial part of the increased amounts now being sought results from the

broader programs mentioned (requests for a single building amount to as much as $5,000,000).

Table 12B shows the numbers of proposals submitted from the various University areas during the period July 1, 1964, through June 30, 1965, together with the actions on the proposals as of the latter date. Since most agencies require several months to act on new requests, it is not surprising that of the 988 applications, 459 are still pending. Of the 529 proposals acted upon, 443 were approved in whole or in part, resulting in funds of $13,800,456 (about 75 per cent of the total requested in the proposals receiving favorable action) and the remaining 86 were declined. Most of the 459 applications still pending will be acted upon by the agencies to which they were addressed during the next twelve months.

Table 12A presents a summary of the proposals of the earlier year, July 1, 1963, through June 30, 1964, and of the actions taken on them as of June 30, 1965. It may be noted that slightly over 70 per cent of the applications submitted during that year have received favorable action, and only 52, out of the total of 917, remain in the pending category. A few of these probably will yet be successful; during April, May, and June, 1965, the number in this group fell from 76 to the present 52, and of the 24 actions taken 17 resulted in awards of just over $1,000,000 and seven were declinations. As of June 30, 1965, the applications submitted during the year ending June 30, 1964, have produced awards totaling $28,705,743, the largest amount for any year to date. The programs and research activities have been or will be funded over varying periods of time and with differing dates of initiation, with the result that much of the present research activity is supported from awards to the proposals submitted prior to June 30, 1964.

D. University Patent Committee

The patent Subcommittee of the University Research Board received during the past year from University staff members thirty-one disclosures of potentially patentable inventions. Most of these inventions were submitted to the University of Illinois Foundation for further study.

The Patent Committee recommended the following action with reference to the rights of the University on inventions reviewed this year:

Twelve -- released to the University of Illinois Foundation for further study and possible patent application;

Four -- released to the inventors;

Two -- released to agencies outside the University sponsoring the investigation, usually the United States Government;

Four -- closed because, in the opinion of the Patent Committee, the University had no rights in the invention;

Six -- are under study at the present time by the University of Illinois Foundation, which will report back to the Committee at a later date; and

Sixteen -- have been recently received and are under consideration either by the Patent Committee or agencies of the United States Government.

Members of the University Patent Committee for 1964-1965 were:

R. J. Maurer, Chairman
J. C. Colvin
J. J. Costello
C. C. De Long, Sec'y
R. T. Milner
J. R. Pasta
H. R. Snyder

E. Institutional Grants

The National Science Foundation Institutional Grant of $150,000 made to the University was assigned to the Center for Advanced Study for use in supporting the appointments of associate members and members, as well as those of research assistants and associates working with the members.

The University also received the sum of $2,500 per fellow in conjunction with the National Defense Education Act Fellowships, certain Office of Education Fellowships, United States Public Health Service Fellowships, and National Science Foundation Faculty Fellowships; the sum of $2,500 for each National Science Foundation Cooperative Fellowship; the sum of $2,500 for each National Science Foundation National Fellowship and the same amount for each National Science Foundation Trainee. Parts of these grants have been assigned to the Graduate College for allocation directly to departments, for partial support of the fellowship subvention program, and for other purposes. A summary of the receipts and allocations of institutional grant funds appears in Table 13.

F. Associated Research and Service Enterprises

1. Department of Computer Science. The Department of Computer Science has continued to make substantial progress in its program of expansion, both in building and in equipment, and the year has been marked by further growth of its instructional, research, and service activities. Construction of the first addition to the laboratory building has been completed. A grant of $483,500 was made by the National Science Foundation in support of the second addition. Contracts for the second addition have been awarded, and construction will begin on or about July 15.

Enrollment in courses taught by members of the departmental staff has continued to remain high. There were 1,029 students enrolled in Mathematics 195, the introductory course, during the past year. During the year, 67 graduate assistants were employed by the Department, most of whom were also registered as Ph.D. candidates engaged in thesis research with members of the staff. The staff of the Department has grown from 249 individuals in June, 1964, to 393 in June, 1965. The research carried on by members of the staff has been concerned with the projects described below. These programs on computer circuits, switching theory, automatic analysis of extensive data (pattern recognition), numerical analysis, and efficient methods for using computers continue to make important progress.

Completion of ILLIAC II Computing System. The ILLIAC II-1401 System is presently in University-wide use augmenting the IBM 7094-1401 service machines.

It is equipped presently with a very comprehensive assembler and FORTRAN compiler operating in a batch processing mode. The FORTRAN compiler is extremely fast, compiling from magnetic tape at the rate of 7,000 card images per second. In spite of this speed the object program remains efficient and the diagnostics good.

Hardware additions to the machine continue. The memory has been expanded to 8,192 words by the purchase of a commercial memory. The laboratory-designed high-speed drum has been operating about a year with extremely low error rates. Work is in progress as additional input/output channels to provide generalized communication lines to other computing systems including ILLIAC III, the Pattern Recognition Computer, and a new peripheral processor for remote console application.

Computer Systems Research. A major effort has been placed on various aspects of time-shared computing. To further this program several remote consoles have been attached directly to ILLIAC II and preparation is underway for a large system employing an intervening peripheral message-switching computer between ILLIAC II and the remote stations. Special Time-Sharing console languages have been written including CLIC, a FORTRAN-like statement-by-statement compiler, and SOC, a desk calculator type program.

Secondary efforts have been put on other computer subsystem investigations including combined analog/digital pattern recognition machines, chemical read-mostly memory techniques and automated computer-affiliated test equipments and procedures.

ILLIAC III. The Illinois Pattern Recognition Computer (ILLIAC III), an all-digital processor for visual information, is under construction at the Digital Computer Laboratory. This visual recognition digital computer is designed for automatic scanning and concommitant numerical analysis of massive amounts of relatively homogeneous visual data. The design is an outgrowth of studies of a computer system capable of scanning, measuring, and analyzing in excess of 10^6 bubble-chamber negatives a year.

Engineering design of the high-speed oscilloscopic scanners, for rapid ingestion of photographic information digitized on a black-white raster, is largely complete. Construction of two 35-mm film scanners, two 46-mm film scanners, two 70-mm film scanners and two precision stages for scanning microscope slides is well under way. Five monitor stations with CRT display are also being fabricated.

In like manner the engineering design of the Pattern Articulation Unit (PAU), the unique visual data processor of the computer, is nearing completion. Construction of the unit is continuing.

A preliminary manual of the computer, illustrating the full instruction set of the machine,is available to all prospective users.

Circuit Research. The group's efforts in the area of electro-optics have been continued. The fiber-optics film scanner has been completed and an attempt is being made to use the absorption-edge modulation in crystals by electric fields (Keldish-Franz effect) to obtain simple photocoupled circuitry.

The main idea of the latter project is to use a modulated-transparency junction as the collector-load of a photo-transister, controlled in turn by light from another stage. Theoretical studies of light-absorption accompany these experiments.

Another major project involves the development of hybrid digital-analog circuitry for a small pattern processor. Current and voltage amplifiers of good linearity and relatively high speed are being investigated in view of this system. The processing involves rotating, translating and magnifying a given pattern and, simultaneously, digitizing it--after "filling in" and "thinning", i.e., improving the definition.

A third area of study investigates the use of uncommon forms of information signals--in particular of random sequences of pulses with a controlled average frequency which represents an analog variable. This study might possibly lead to a "neuron" computer.

IBM 7094-1401 System. Increasingly heavy use is being made of the IBM 7094-1401 System, with nearly 170,000 individual runs being made in the period from July 1, 1964, to June 30, 1965. Of the total operational time (5,935 hours) about 6 per cent (366 hours) was used for class problems (which accounted for nearly one-fourth of the number of individual runs), 25 per cent (1,488 hours) was used for thesis research, 55 per cent (3,272 hours) was used for non-thesis research by staff members for various departments of the University, and administrative and developmental use of the computer by the Department of Computer Science and other units of the University accounted for 13 per cent (791 hours). The remaining 18 hours was used for special short runs by staff and students.

2. Committee on Natural Areas. This committee has supervised the maintenance and utilization, as in past years, of the University-owned Trelease Woods, Trelease Grassland Tract, Brownfield Woods, a research area in Allerton Park, Volo and Wauconda Bogs, and certain waylands along the reilroad east of Urbana. These areas are used extensively in both teaching and research in the departments of Agronomy, Botany, City Planning and Landscape Architecture, Entomology, Forestry, Recreation and Municipal Park Administration, and Zoology. Perhaps a thousand students visit the area each year.

Negotiations were initiated during the past year for the purchase of the 36-acre Nettie Hart Memorial Woods along the Sangamon River northeast of Mahomet. This area contains Indian mounds of special interest to the Department of Anghropology as well as an excellent primitive oak-hickory community.

With the retirement of Charles Smith, a new woods custodian, Edwin C. McCall, was secured whose duties will be concerned with maintenance, protection, and aid with research and educational projects wherever possible.

The membership of the committee is:

S. C. Kendeigh, Chairman
L. C. Bliss
W. R. Boggess
W. R. Horsfall
J. A. Jackobs
G. N. Jones
R. T. Odell
H. H. Shoemaker
J. N. Spaeth

3. Physical Environment Unit. During 1964-65 the unit served the needs of several divisions of the University for teaching and research requiring control of temperature, humidity, and altitude: Mechanical and Industrial Engineering, Psychology, Physical Education for Men, Physiology and Biophysics, and Physical Environment Unit staff. Seven graduate students utilized the facilities and skills of the Unit in their thesis research projects. Class demonstrations and exercises of the physiological consequences of exposure to heat and to altitude were conducted. Preliminary drawings and estimates were reviewed for extensive remodeling of the area existing between the facilities of the Unit. Proposed were shower and dressing facilities for male and female subjects, offices, and additional laboratory space. The main addition to the facilities were (1) a 7-foot long immersion bath for studies of sweating and thermoregulation, (2) a gift from the Western Electric Company of a 3'x3'x6' high-controlled environment chamber, and (3) three Drinker-Collins respirometers obtained on inventory transfer.

Dr. Bruce A. Hertig, associate professor of physiology and of mechanical engineering, assumed the directorship of the Unit.

The membership of the Executive Committee of the Physical Environment Unit for 1964-65 was:

F. Sargent II, Chairman
R. S. Engelbrecht
L. G. Humphreys
H. H. Korst
A. V. Nalbandov
B. A. Hertig, ex officio

4. Radiation Hazards. In 1964-65 there was continued expansion of the use of radiation sources and radioactive materials. Orders for radioisotopes totaled over 64,000 millicuries in 736 orders distributed among 25 departments. Of this total, 94 orders for over 1,900 millicuries contained in 440 samples were produced in the nuclear reactor. Not included in the above total is one order for a 225 Curie (or 225,000 millicurie) Cobalt-60 irradiator soon to be installed at the Veterinary Medicine Research Farm and for which the preliminary hazards analysis was made this year.

The number of rooms on the active radiation survey list presently ranges from 170 to 180. The number of film badge monitors in use has increased to 330. No individual's reported radiation exposure exceeded the yearly Radiation Protection Guide of 5,000 millirem, although one individual did exceed the quarterly Radiation Protection Guide of 1,250 millirem.

No serious spills or incidents occurred this year. Radiation levels and areas at the Cyclotron and Betatron laboratories have not changed significantly. At the reactor laboratory, increased use of beam ports has added a new dimension to the radiation control picture.

Blood counts were scheduled at the University Health Center for 218 persons. Eye examinations were scheduled at Carle Hospital Clinic for 65 persons. No abnormalities due to radiation were found.

The Health Physics staff is the same as last year, two full-time health physicists and one full-time technician.

Members of the Radiation Hazards Committee for 1964-65 were:

A. O. Hanson, Chairman
J. S. Allen
M. K. Brussel
J. Doak
H. S. Ducoff
L. E. Elliott
J. P. Hummel
R. F. Nystrom
J. J. Steerman
O. S. Walters

5. *Radiocarbon Laboratory*. Facilities of the Radiocarbon Laboratory were used for research projects by 20 persons from seven University departments or divisions. In addition, major research projects of the Laboratory staff during the year have included: (1) demonstration of the structure of the complex capsular polysaccharide from *Aerobacter aerogenes*, strain A 3, by methylation, periodate oxidation, and partial degradation methods; (2) development of a reproducible assay for the enzyme which catalyzes activation of glucose for biosynthesis of the polysaccharide; (3) preliminary structural studies on polysaccharides from other strains of *Aerobacter aerogenes*; (4) preparation of unsaturated compounds labeled at one olefinic carbon atom in a stereospecific manner with tritium; (5) development of an isotopically reliable C-methyl degradation procedure for carbon-14 and tritium labeled compounds; and (6) synthesis of uniquely labeled tritium compounds by tritioboration procedures on a ten millimole scale by use of high-vacuum line and preparative gas chromatography processes. One outside grant has helped to support the research; in addition, two grants-in-aid totaling about $5,000 were given by the Upjohn Company and Abbott Laboratories. The staff of the Laboratory also has served in advisory capacities on carbon-14 and tritium problems and techniques for University faculty and students and for visitors from laboratories in the United States and foreign countries.

6. *Illinois Historical Survey*. The Illinois Historical Survey under a new director and assistants as a result of retirement and graduation has continued its program of service to students, local staff and faculty members, visiting scholars and the general public. The number of persons using the Survey during the past year has been unusually large; the result, perhaps, of closer ties with the History Department represented by the joint appointment of the Director, and the fact that, for the first time in a number of years, both of the assistants were themselves graduate students in history. In addition to students and faculty on this campus, scholars from the University of Wisconsin, Eastern Illinois University, Western Illinois University, the University of Kentucky and Southern Illinois University have used the resources of the Survey in connection with their research.

Frequent consultations have been held with the University Archivist and an effort made (successfully, I believe) to coordinate the activities of the two agencies.

In the interest of a more efficient use of the space available to it, the Survey has carried out during the past year a major reorganization of its holdings. The relocation of manuscript files and microfilm records opened up additional bookshelf space, thus providing much needed room for expansion and temporarily relieving a severe shortage of shelf space.

7. Water Resources Center. The University of Illinois Water Resources Center was established in October, 1963, to coordinate water related research and to serve as a focal point for interdisciplinary activities related to water resources.

During the past year the activities of the Center were considerably expanded when the Center was designated as the water resources research "institude" for Illinois under the terms of the Water Resources Research Act of 1964. This designation was made by Governor Kerner in October, 1964, and confirmed by the Office of Water Resources Research, Department of the Interior in January, 1965. The University of Illinois was one of the initial group of 14 universities selected to inaugurate the research activities envisioned in the Act. In the development of the authorized research program the Center intends to emphasize the following broad areas of research: (1) fundamental hydrology including hydrogeology; (2) water quality and the hydromechanics of absorption, dispersion and transport phenomena of pollution, and (3) planning for water resources development.

The Office of Water Resources Research provided a sum of $75,000.00 to the Center for research and related activities during fiscal year 1965. These funds were used in part to begin additional research in seven departments, including: Agronomy, Civil Engineering (Hydraulic and Water Resources Engineering and Sanitary Engineering), Bureau of Economics and Business Research, Forestry, Geography, Metallurgy, Mining and Petroleum Engineering, and the State Water Survey.

Staff members associated with the Center devoted considerable effort during the past year to developing extramural relationships with universities in Illinois and State agencies. The principal activity in this area was the development of a state-wide Advisory Committee to the Center. The membership of this committee is as follows:

Prof. Kenneth L. Bowden, Asst. Prof. of Earth Sciences, Northern Illinois University;

Dr. Robert W. MacVicar, Vice President for Academic Affairs, Southern Illinois University;

Dr. Kenneth Damann, Prof. and Head, Department of Botany, Eastern Illinois University;

Dr. Everett F. Morris, Assoc. Prof. of Biology, Western Illinois University;

Dr. John Trotter, Assoc. Prof. of Geography, Illinois State University;

Dr. Gilbert F. White, Prof. of Geography, University of Chicago;

Dr. Wesley O. Pipes, Assoc. Prof. of Civil Engineering, Northwestern University;

Dr. C. Fred Gurnham, Prof. of Civil Engineering, Illinois Institute of Technology;

Mr. John C. Guillou, Chief Waterway
Engineer, Division of Waterways;

Mr. C. W. Klassen, Chief Sanitary
Engineer, Division of Soil and Water Conservation, and

Mr. Gene Graves, Executive Director, Board of Economic Development.

An introductory meeting of this committee and staff associated with the Center was held on May 19, 1965. Mr. E. D. Eaton, Associate Director, Office of Water Resources Research, attended the meeting and discussed the implementation of the Water Resources Research Act. In addition, staff members associated with the Center have visited many of the universities and agencies represented on the Committee to discuss the Center's development and areas of cooperation.

The Center assisted in the development of a special interdisciplinary course in water resources planning for employees of federal agencies. This course was conducted during the spring semester and included the participation of staff members from six academic departments.

Members of the Executive Committee are:

G. W. White, Chairman
W. C. Ackermann
J. C. Frye
R. J. Martin
J. P. Murtha, Director of Center
M. B. Russell

8. Survey Research Laboratory. In accordance with original plans, this first year of the Survey Research Laboratory has been devoted to the organization of operations, the hiring of technical staff, the development of a master sample of the population of Illinois, the hiring of interviewers in various parts of the state, and the development of a data repository. All of these tasks should be completed by the end of the summer, so that the Laboratory should be ready to begin regular operations in September, 1965, on schedule.

The chiefs of the various sections of the Laboratory are Professor Lazerwitz of Sociology for the Sampling Section, Mr. Mathew Hauck from the marketing area for the Field Operations Section, Professor Denis Sullivan of Political Science for the Data Repository, and Mrs. Doris Barr from communications for the Data Processing Section.

The principal responsibility for putting the Laboratory on an operational basis rested in the past year with the first three of these sections. Under the direction of Professor Lazerwitz, a master sample has been designed which provides representation from all parts of the state's population. The sample contains roughly 17,600 housing units selected from 30 countries, 48 municipalities, and 65 census tracts in the state. It should serve as a basis for population surveys in the state for several years to come.

Mr. Hauck has directed the organization of the field staff. By September, 1965, this staff will consist of 170 interviewers in the different parts of the state. Most interviewers will also have had initial training and will be ready to undertake interviewing work for SRL on short notice.

Under the direction of Professor Sullivan, the Data Repository has acquired 14 studies which have been processed and are available for use by faculty and graduate students. By the end of the summer 25 studies will have been added to the Repository holdings. In addition, the Repository is acquiring study descriptions and code books of studies located at other data archives.

Reference should also be made to the very fine cooperation of the Executive Committee of the Survey Research Laboratory. Under the chairmanship of Professor Goodman, the committee has assisted the Director in preparing a set of operating rules for the Laboratory, and has also provided guidence and advice on various policy matters that have arisen.

Besides the work accomplished during this formative year in organizing the Survey Research Laboratory, advice has been given to a number of students and staff members regarding survey operations, and staff members of the Laboratory have given guest lectures on survey work to various classes in the University. In addition, inquiries have been received by the Laboratory regarding its availability for survey work.

Members of the Executive Committee for 1964-65 were:

W. I. Goodman, Chairman
G. K. Brinegar
R. Ferber, Director
M. Fishbein
G. W. Fisher
B. Lazerwitz
M. H. Lepper
A. Sturmthal
D. G. Sullivan

9. *Center for International Comparative Studies*. Establishment of the Center was approved by the Board of Trustees June 17, 1964. The activities of the Center are being supported by a portion of a five-year grant received from the Ford Foundation.

In July, 1964, Dean Carter appointed an *ad hoc* Executive Committee, listed below, to serve until a permanent committee and director should be appointed.

In the past academic year the committee has met on ten occasions. The first three meetings were mainly devoted to developing a statement regarding operating procedures of the Center and criteria under which proposals may be granted financial support. The remaining meetings for the most part were devoted to considering proposals submitted by faculty members.

In addition to the statement for procedures and criteria, the committee also developed a basic formula for determining the amount of funds that could be provided for an approved project. Under this formula, for a grant of at least six months duration, a faculty member may be provided funds to replace his University salary, if unreceived, for the period the award is in effect; to pay the grantee's international travel in an amount equal to a round trip economy jet air fare; to reimburse itemized and justified research expenses; and to furnish modest maintenance allowances for a limited number of accompanying dependents. Also, for junior faculty members, summertime awards may be granted to include amounts for the grantee's maintenance equivalent to a summer faculty fellowship, for his international travel, and for his itemized and justified research expenses.

From November 1 to June 30 the committee considered 13 proposals submitted by individual faculty members or faculty groups. As of the end of June, seven projects were approved and arrangements initiated for financial support. A total of $30,945.13 was appropriated from the Ford Foundation grant to support these projects. One proposal is still under active consideration, while five proposals were either rejected on the grounds that they failed to meet criteria developed for providing grants, or returned to the applicant for further development.

Members of the *ad hoc* Executive Committee for 1964-65 were:

S. B. Levine, Acting Chairman
G. K. Brinegar
J. B. Casagrande
R. Dangerfield
J. F. Due
E. G. Lewis
H. R. Snyder
J. H. Steward
A. Sturmthal
J. Thompson

10. Center for Human Ecology. During the spring of 1965 a proposal to establish a Center for Human Ecology, prepared by the University Committee on Human Ecology, was approved by the Executive Committee and University Research Board of the Graduate College and the Board of Trustees. The Center will be a separate unit of the Graduate College and will be administered by a Director and an Executive Committee. The University Committee on Human Ecology will be known as the University Council on Human Ecology. The Center will develop a program of education and research in human ecology and will be prepared to give advice and counsel to state and national agencies as well as engage in planning. At the present time there are 27 members of Council representing 17 different departments and two inter-disciplinary units of the University.

On May 24, 1965, the Dean of the Graduate School appointed the Director and the Executive Committee:

F. Sargent II, Director and Chairman
L. C. Bliss
R. S. Engelbrecht
K. E. Harshbarger
M. H. Lepper
N. D. Levine

G. Support of Scholarly Publications

1. Publications by the University Press. The University of Illinois Press is the central agency responsible for coordinating and producing all University publications. One of its important functions has been to provide for book publication of worthwhile studies by scholars and research workers on the campus and elsewhere. It has been especially concerned with gaining a hearing for authors whose works have importance and quality but lack the market appeal required for commercial publication.

Since it was established in 1918, the University Press has published more than 800 scholarly and scientific books. It has earned a world-wide reputation not only for its distinguished lists but also for its excellent graphic design. Besides an output of 35 or more books each year, it issues quarterly journals in law, mathematics, library science, language and literature.

A new series of paperback books, Illini Books, begun two years ago, now contains 20 titles, with 10 additional titles in production. Publications of the University Press for the preceding year are listed in Table 14 in the appendix.

Members of the University Press Board during 1964-1965 include:

T. Peterson, Chairman
H. E. Carter, ex officio
R. W. Johannsen
M. Muntyan, Secretary, ex officio
R. W. Rogers
J. R. Shipley
P. E. Yankwich

Committee members for the University Studies series were:

Biological Monographs:	F. J. Kruidenier, Chairman R. D. DeMoss D. P. Rogers Hobart Smith J. G. Sternburg S. G. Stolpe
Monographs in Anthropology:	J. B. Casagrande, Chairman J. R. Gusfield J. A. Russell
Monographs in Medical Sciences:	S. R. M. Reynolds, Chairman E. R. Kirch J. P. Marbarger I. Schour R. J. Winzler
Studies in Language and Literature:	B. A. Milligan, Chairman J. R. Frey Philip Kolb
Studies in the Social Sciences:	R. W. Harbeson, Chairman M. H. Fisch R. W. Johannsen R. E. Scott

2. *Annual List of Publications of the Faculty*. The 1964 listing of scholarly and professional publications by faculty and administration again was substantially increased in length over other years. Over 1,600 faculty members from the Urbana and Chicago campuses were represented with one or more titles. This year the indexing of the publication, a tedious, time-consuming task, was done largely by machine.

3. *The Illinois Journal of Mathematics* and *The Journal of English and Germanic Philology*. These journals are published quarterly under the auspices of the Graduate College. Since June of 1964, *The Illinois Journal of Mathematics*

has received 88 papers from six countries including the United States, representing a decrease over the large number of papers received the preceding year. The decrease is doubtless due to the considerable backlog of material on hand. Of the papers received, the Journal published 61, totaling 705 pages. Circulation increases by 4 per cent over a year ago.

The four issues of *The Journal of English and Germanic Philology* for 1964 contained a total of 846 pages, divided between 30 articles and 206 reviews. The Board of Editors are currently accepting about 15 per cent of the articles submitted to them.

Serving on the editorial board of *The Illinois Journal of Mathematics* during 1964-65:

R. G. Bartle, Chairman
P. T. Bateman
D. G. Bourgin
A. P. Calderon
S. S. Chern
P. Hilton
M. Suzuki

Serving on the board for *The Journal of English and Germanic Philology* for 1964-65:

R. L. Haig, Acting Chairman
A. E. Barker
G. B. Evans
P. M. Mitchell (on leave 1964-65)
E. A. Philippson
R. W. Rogers
J. Stillinger (on leave 1964-65)
G. B. Stillwell

IV. CHICAGO MEDICAL CENTER DIVISION OF THE GRADUATE COLLEGE

(Report prepared by Milan Novak, Associate Dean)

A. Introduction

Recent statistics indicate that the national demand for persons who have obtained graduate training in the basic health sciences is unabated. Full-time budgeted positions in medical, dental, pharmacy and nursing colleges remain unfilled. In the 84 colleges of medicine about 900 vacancies exist, a majority of which require the Ph.D. degree with or without the associated professional degree. Less than one-third that number obtained this degree in the health sciences. Appropriate graduate training for individuals desiring appointments on professional college staffs can best be provided in organized degree programs located in a health professional environment such as exists at our Medical Center.

Emphasis on recruitment for graduate training has been continued and expanded among students now enrolled in health sciences curricula. An increasing number of medical, dental,and pharmacy students are initiating graduate study simultaneously with their undergraduate curriculum. The program in nursing leading to the M.S.N. degree (Master of Science in Nursing) was represented by its first four candidates to receive this degree at this institution. Increased available funds for summer research fellowships for medical, dental, and pharmacy students has provided a stimulus to students to initiate graduate programs during their free summer quarter. A total of 105 such fellowships at $600 each were awarded representing a substantial increase over previous summers.

B. Administration

1. Enrollment, Faculty, Degrees Awarded. Enrollment increased to 282, which represents, for the fourth consecutive year an approximate increase of 20 per cent over the previous year. Faculty membership has been expanded by 40 new appointments, seven at full standing, 17 at the M.S. and 16 on limited standing. Arrangements have been made to appoint to preliminary examining committees, members of the graduate faculty at the Urbana and the Circle Campuses. A total of 18 Ph.D. degrees and 52 Master's degrees were awarded. See Table 15 in the appendix.

2. Courses and Curricula. In the area of courses and curricula, 24 new courses were approved, including a new series for the medical-surgical sequence in the Master of Science in Nursing program to be initiated during the next academic year. A new curriculum leading to the M.S. in Orthopedic Surgery was approved by the Board of Higher Education. The question of a doctorate for teachers in health profession areas was considered, but faculty opinion was divided and prevailing sentiment was about two to one against a doctorate which did not include a major research thesis.

3. Policy Decisions. Several policy matters were decided as follows:
(a) Simultaneous registration of medical students will henceforth require only verification that they are in good standing in the College of Medicine. Previously they were required to rank in the top one-third of their class.

(b) A revision of admission procedures, enlisting greater aid of the Office of Admissions and a more orderly consideration of applicants was approved.

(c) The passing score for the Educational Testing Service foreign language examinations was set at 425 points. Students failing the test the first time must pay the fee for subsequent examinations.

(d) Students entering with a bachelor's degree must attempt to take one foreign language examination before the termination of the fourth quarter and must pass one foreign language examination before six quarters have elapsed. Courses at the Chicago Circle campus have been made available for students registered at the Medical Center at no extra tuition cost.

(e) Retroactive credit for graduate courses pursued in various post-graduate areas will no longer receive transfer credit unless they appear on a regular academic transcript of record.

Members of the Executive Committee for 1964-1965 were:

Milan Novak, Chairman
Ralph Daniels
Bernard Greenberg
Arthur La Velle
Martin Schulman
Neena Schwartz
Louis Sibal
Bernard Weissmann
James Yaeger

C. Promotion and Assistance of Research

A total of 41 requests for research aid were approved and funded from the accumulated share of indirect costs funds derived from grants on this campus.

A substantial sum was allocated for purchase of additional computer facilities for the IBM, 1620, Model 2, basic instrument which was procured with last year's funds. A detailed accounting by departments is summarized in Table 18.

Members of the Research Board Sub-Committee were:

Milan Novak, Chairman	Neena Schwartz
John Marbarger	James Yaeger
Alfred Perkins	

A total of 29 training grants representing $1,386,705 were administered through the Graduate College and accounted for a significant segment of time and effort of the office personnel. Most of the grants provide stipends for graduate student trainees, standardized on this campus since 1962, at a beginning basic stipend of $2,400 for predoctoral students and $5,000 for students with an M.D. or D.D.S. degree. The new stipend levels set by the National Institutes of Health effective July 1, 1965, are the same as those we have practiced uniformly and so no major difficulties have been encountered in adapting to the new regulation.

More detailed data on the promotion and assistance of research will be found in Tables 17 and 18 included in the Appendix of this report.

V. PLANNING FOR GRADUATE PROGRAMS AT CHICAGO CIRCLE

A. Initial Progress

With the decision to initiate graduate programs at Chicago Circle in the fall of 1967, there arose an urgent need for discussion, planning, and action. Several steps were taken. The old Chicago Undergraduate Division Liaison Committee was replaced by the Joint Advisory Committee on Graduate Programs at Chicago Circle. A number of meetings were held during the year, where procedures used in program development were established. For a more detailed report of that committee, see the section immediately following.

Upon the approval of eighteen members with full standing, and nineteen members with master's standing, a graduate faculty was established. A first meeting of this faculty was held at Chicago Circle in May, 1965, in conjunction with the Joint Advisory Committee.

In May, the Board of Trustees approved the recommendation of Acting Dean Herbert E. Carter for the appointment of Dr. R. Curtis Retherford, Professor of Physics at Chicago Circle, as Associate Dean of the Graduate College for Chicago Circle on one-half time for two years from September 1, 1965. The main function of the position of Associate Dean will be: (1) liaison relationships with the Graduate College and the University Research Board, as regards research grants (including proposals to be submitted to outside agencies), and appointments to membership on the graduate faculty; (2) coordination of the activities of the Joint Advisory Committee, including its plans for future research facilities and facilities grants; (3) the planning of the graduate program to be recommended for initiation in 1967 (curriculum, staff for graduate instruction, and related administrative services).

B. Joint Advisory Committee on Graduate Programs at Chicago Circle

The Joint Advisory Committee for Graduate Programs at Chicago Circle was established in October, 1964 by President Henry. The general function of the Committee is to assist in appropriate ways in the orderly development of sound graduate programs at Chicago Circle. This includes: (1) surveying the capabilities and conditions in the various departments for the initiation of graduate programs; (2) providing advice to departments for their planning of graduate programs; (3) in some cases taking the initiative in recommending graduate programs in particular disciplines. The Committee also has a university-wide function to encourage cooperation and coordination among the graduate programs at the three campuses.

During the year the Committee has held meetings at Navy Pier, Chicago Circle, Urbana, and the Medical Center campuses. The administrative officers at each of these campuses have met the Committee and have been informed of its general function

The Committee made a survey of the number of present and prospective graduate faculty members in each of the departments and obtained information on the earliest practical date at which each department could initiate a masters and a Ph.D. degree program. The results of this survey and the general requirements of the Graduate College provided a picture of the present capabilities for graduate work in the departments and the additional steps that would be necessary to initiate a graduate program. An attempt was also made to collect information on the general standards for graduate programs used in other institutions. It was hoped that this information could be helpful to the various departments in planning their graduate program. The results of the discussions of the Committee and other available information were summarized in a memo that provided general guidelines for setting up graduate programs at Chicago Circle.

Since it is not planned to initiate graduate programs at Chicago Circle until 1967, several alternatives were explored which would allow special graduate students to take some courses and/or do research at Chicago Circle but receive their degree either at Urbana or the Medical Center. Some special arrangements involving cooperation between corresponding departments at Chicago Circle and Urbana have been made. A liberal interpretation of the residence requirements was approved which will permit the student to include residence at Chicago Circle in graduate work to be credited to his residence requirements.

The Graduate College has prepared two forms to facilitate the exchange of information and credits for a student pursuing graduate programs at any of the three campuses. One form is entitled "Application for Inter-Campus Transfer," which will allow both campuses to be informed of the work that has been completed and the future program of the student at the other campuses. The second form is entitled "Application to Pursue Joint Programs Leading to an Advanced Degree," which will allow the student to take special courses or to do research at another campus and maintain a summary of the information in the parent campus.

The membership of the Joint Advisory Committee on Graduate Programs at Chicago Circle was as follows:

H. E. Carter, Chairman
S. B. Binkley
J. O. Corliss
Lucile Derrick
Murray Edelman
I. E. Farber
J. T. Flanagan
Arthur La Velle
R. E. Machol
W. J. Otting, Executive Sec'y
M. E. Van Valkenburg
P. E. Yankwich

APPENDIX

TABLE 1

ENROLLMENT BY DEPARTMENTS -- URBANA

1964-65 -- 1962-63

DEPARTMENT	1964-65	1963-64	1962-63
AGRICULTURE			
Agricultural Economics	78	71	61
Agricultural Education	16	14	9
Agricultural Engineering	19	16	21
Agronomy	80	78	64
Animal Science	59	61	50
Animal Nutrition	a/	1	4
Dairy Science	33	29	33
Food Science	53	49	48
Dairy Technology	10	5	8
Forestry	16	7	5
Home Economics	66	56	54
Home Economics Education	11	8	15
Horticulture	17	23	29
Plant Pathology	30	25	23
Subtotal	488	443	424
COMMERCE AND BUSINESS ADMINISTRATION			
Accountancy	90	84	76
Accounting Science	44	54	52
Business	32	40	43
Business Administration	121	115	81
Commercial Teaching	34	36	34
Economics	136	135	132
Finance	40	37	39
Management	15	13	16
Marketing	68	58	48
Subtotal	580	572	521
EDUCATION			
Education	1,942	1,788	1,673
Education of Deaf	1	1	0
Education of Mentally Handicapped Children	4	8	10
Subtotal	1,947	1,797	1,683

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1964-65	1963-64	1962-63
ENGINEERING			
Aeronautical and Astronautical Engineering	56	38	33
Ceramic Engineering	30	29	19
Civil Engineering	330	371	306
Sanitary Engineering	19	24	24
Electrical Engineering	361	353	337
Mechanical Engineering	132	151	152
Metallurgical Engineering	68	53	52
Mining Engineering	11	13	10
Nuclear Engineering	61	56	49
Physics	343	334	287
Teaching of Physics	4	0	2
Theoretical and Applied Mechanics	76	86	96
Subtotal	1,491	1,508	1,367
FINE AND APPLIED ARTS			
Architecture	31	34	35
Architectural Engineering	27	30	18
Art	67		
Art Education	25	26	19
Art History	b/	17	10
Design	b/	8	5
Painting and Printmaking	b/	31	28
Landscape Architecture	16	12	3
Music	203	131	87
Musical Arts	c/	54	53
Music Education	196	187	193
Musicology	c/	14	16
Urban Planning	27	21	27
Subtotal	592	565	494
JOURNALISM AND COMMUNICATIONS			
Advertising	47	27	20
Journalism	30	29	24
Radio and Television	24	19	11
Television	3	2	6
Subtotal	104	77	61
LAW			
Law	18	15	8
Comparative Law	2	5	5
Subtotal	20	20	13

---

b/ Included in figure for Art.
c/ Included in figure for Music.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1964-65	1963-64	1962-63
LIBERAL ARTS AND SCIENCES			
Anthropology	59	47	40
Astronomy	15	14	13
Biology (formerly Biological Sciences)	33	39	24
Teaching of Biological Sciences and General Science	31	35	38
Botany	48	46	48
Chemistry	396	361	344
Chemical Engineering	55	51	51
Teaching of Chemistry	6	12	12
Classics	7	a/	a/
Classical Philology	6	7	7
Greek	4	7	3
Latin	1	10	7
Teaching of Latin	2	3	2
Comparative Literature	10	4	a/
English	332	308	287
Teaching of English	39	33	33
Entomology	42	42	41
French	99	84	85
Teaching of French	6	3	4
Geography	48	35	30
Teaching of Geography	3	4	2
Geology	81	82	83
German	46	45	36
Teaching of German	5	3	5
History	175	166	152
Linguistics	36	25	24
Mathematics	501	421	419
Statistics	10	19	15
Teaching of Mathematics	94	87	88
Teaching of Mathematics and Physical Sciences	a/	1	a/
Microbiology	56	50	52
Philosophy	47	34	33
Physical Sciences	0	0	0
Teaching of Physical Sciences	2	4	6
Physiology	74	64	67
Political Science	111	95	70
Public Administration	2	4	3
Psychology	200	189	172
Russian	38	28	17
Teaching of Russian	2	0	0
Social Sciences	18	21	12
Teaching of Social Studies	46	32	40
Sociology	65	53	52

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1964-65	1963-64	1962-63
Spanish	108	86	67
Italian	2	1	1
Portuguese	3	1	2
Teaching of Spanish	6	9	6
Speech	141	138	126
Speech Correction	19	18	20
Teaching of Speech	2	5	8
Zoology	92	99	84
Subtotal	3,222	2,925	2,731
PHYSICAL EDUCATION			
Dance	6	6	7
Health Education	17	12	15
Physical Education	174	161	143
Recreation	51	38	33
Subtotal	248	217	198
OTHER			
Biophysics	23	23	15
Chemical Physics	2	3	2
Communications	63	60	56
Extension Education	18	10	7
Genetics	4	[a]	[a]
Labor and Industrial Relations	69	56	45
Library Science	291	266	242
Social Work	154	126	105
Veterinary Medical Science	66	54	47
Subtotal	690	598	519
UNCLASSIFIED	732	558	502
IN ABSENTIA	(385)[e]	(362)[e]	(221)[d]
TOTAL	10,116	9,280	8,513

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[a] Program not offered.

[d] These students are included in the foregoing departmental figures.

[e] Doctoral candidates who have passed preliminary examinations and are registered for dissertation in absentia. These are included in the foregoing figures.

TABLE 2

DEGREES CONFERRED BY FIELD OF STUDY

THREE-YEAR COMPARISON

Urbana Campus -- Chicago Medical Center -- Totals

URBANA

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1964-65	1963-64	1962-63	1964-65	1963-64	1962-63
Accountancy	7	4	9	8	16	15
Advertising	a/	a/	a/	9	5	3
Aeronautical and Astronautical Engineering	4	1	0	4	10	7
Agricultural Economics	4	1	9	17	13	9
Agricultural Education	a/	a/	a/	2	3	1
Agricultural Engineering	a/	a/	a/	9	8	6
Agronomy	9	8	6	13	14	6
Animal Nutrition	0	2	2	a/	a/	0
Animal Science	10	5	4	6	10	2
Anthropology	1	0	0	3	1	4
Architectural Engineering	a/	a/	a/	21	12	4
Art Education	a/	a/	a/	7	3	6
Art History	a/	a/	a/	0	3	1
Astronomy	3	0	2	4	3	2
Biology b/	0	0	a/	10	7	4
Biophysics	1	2	1	2	3	1
Botany	3	8	4	12	8	7
Business	6	12	11	a/	a/	a/
Ceramic Engineering	2	5	3	10	6	10
Chemical Engineering	13	6	7	14	11	19
Chemistry	54	44	58	70	41	44
Civil Engineering	20	39	19	98	108	86
Classical Philology	0	1	0	a/	a/	a/
Classics	a/	a/	a/	1	2	0
Commercial Teaching	a/	a/	a/	5	7	2
Communications	5	8	2	a/	a/	a/
Comparative Literature	a/	a/	a/	3	a/	a/
Dairy Science	3	3	8	2	5	9
Dairy Technology	0	0	2	0	3	1
Dance	a/	a/	a/	3	2	1
Economics	9	13	10	24	40	16
Education	12	17	10	12	16	3
Education of Deaf	a/	a/	a/	0	0	0
Education of Mentally Handicapped Children	a/	a/	a/	1	2	7

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a/ Degree not offered.

b/ Formerly Biological Sciences.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1964-65	1963-64	1962-63	1964-65	1963-64	1962-63
Electrical Engineering	32	36	28	96	78	102
English	17	18	23	53	41	44
Entomology	7	4	5	4	2	3
Finance	1	2	2	4	9	6
Food Science[c]	7	8	6	1	5	5
Forestry	a/	a/	a/	5	2	0
French	1	2	3	13	16	13
Geography	3	2	4	8	3	4
Geology	15	11	20	17	7	9
German	5	0	1	3	4	6
Greek	a/	a/	a/	0	0	2
Health Education	a/	a/	a/	7	4	11
History	7	9	5	45	34	16
Home Economics	0	0	1	17	16	13
Home Economics Education	a/	a/	a/	1	1	2
Horticulture	4	3	3	0	6	4
Italian	0	0	0	0	0	0
Journalism	a/	a/	a/	6	8	8
Labor and Industrial Relations	a/	a/	a/	15	20	11
Latin	a/	a/	a/	2	4	1
Library Science	2	4	1	99	38	81
Linguistics	1	0	0	2	3	4
Management	a/	a/	a/	4	6	4
Marketing	3	2	0	10	7	12
Mathematics	13	23	12	112	103	134
Mechanical Engineering	11	14	6	45	47	38
Metallurgical Engineering	8	5	3	6	11	11
Microbiology	7	5	7	5	6	4
Mining Engineering	0	3	0	3	1	1
Music Education	a/	a/	a/	46	37	45
Musicology	2	0	3	a/	a/	a/
Nuclear Engineering	1	1	0	15	18	13
Philosophy	4	2	1	6	3	5
Physical Education	10	7	6	30	30	32
Physical Sciences	a/	a/	a/	0	0	0
Physics	18	25	14	78	78	68
Physiology	5	7	6	17	8	13
Plant Pathology	3	1	6	5	3	3
Political Science	5	4	6	3	8	9
Portuguese	0	0	0	0	1	0
Psychology	26	16	20	22	19	16
Public Administration	a/	a/	a/	2	0	0

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a/ Degree not offered.

c/ Formerly Food Technology.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1964-65	1963-64	1962-63	1964-65	1963-64	1962-63
Radio and Television	a/	a/	a/	6	5	2
Recreation	a/	a/	a/	19	22	13
Russian	0	0	0	6	6	2
Sanitary Engineering	0	3	0	8	5	12
Social Sciences	a/	a/	a/	6	4	4
Sociology	2	8	1	4	4	6
Spanish	3	2	3	10	22	14
Speech	16	8	9	32	27	20
Speech Correction	a/	a/	a/	5	3	3
Statistics	0	0	0	1	4	2
Teaching of Biological Sciences and General Science	a/	a/	a/	6	17	10
Teaching of Chemistry	a/	a/	a/	1	1	2
Teaching of English	a/	a/	a/	4	5	11
Teaching of French	a/	a/	a/	1	0	2
Teaching of Geography	a/	a/	a/	2	0	1
Teaching of German	a/	a/	a/	0	0	3
Teaching of Latin	a/	a/	a/	1	0	1
Teaching of Mathematics	a/	a/	a/	32	16	10
Teaching of Physical Sciences	a/	a/	a/	1	0	1
Teaching of Physics	a/	a/	a/	1	0	0
Teaching of Social Studies	a/	a/	a/	13	4	16
Teaching of Spanish	a/	a/	a/	4	1	0
Teaching of Speech	a/	a/	a/	0	2	3
Theoretical and Applied Mechanics	16	18	15	11	16	17
Urban Planning	a/	a/	a/	5	7	9
Veterinary Medical Science	4	4	3	10	8	12
Zoology	10	5	6	16	9	19
Subtotal	435	441	396	1,382	1,287	1,224

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a/ Degree not offered.

DEGREES CONFERRED (Continued)

PROFESSIONAL DEGREES CONFERRED - URBANA

	1964-65	1963-64	1962-63
Doctor of Business Administration	0	0	4
Doctor of Education in			
Education	30	24	26
Music Education	4	11	5
Doctor of Musical Arts	6	4	2
Doctor of the Science of Law	0	0	0
Advanced Certificate in			
Education	47	50	39
Music Education	4	2	1
Certificate of Advanced Study in Librarianship	1	1	a/
Master of Accounting Science	32	30	24
Master of Architecture	15	20	10
Master of Business Administration	35	18	6
Master of Commerce	4	1	3
Master of Comparative Law	5	2	2
Master of Education	359	404	351
Master of Extension Education	5	5	0
Master of Fine Arts in			
Design	1	0	2
Landscape Architecture	0	1	3
Painting and Printmaking	13	11	6
Master of Landscape Architecture	2	a/	a/
Master of Laws	7	1	2
Master of Music	39	31	20
Master of Social Work	52	48	30
Master of Television	1	0	4
Master of Urban Planning	3	a/	a/
Subtotal	665	664	540
TOTAL DEGREES CONFERRED, URBANA	2,482	2,392	2,160

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a/ Degree not offered.

DEGREES CONFERRED (Continued)

CHICAGO MEDICAL CENTER

FIELD OF STUDY	Ph.D. 1964-65	Ph.D. 1963-64	Ph.D. 1962-63	M.S. 1964-65	M.S. 1963-64	M.S. 1962-63
MEDICAL						
Anatomy	4	0	3	1	3	5
Biochemistry	4	7	4	8	2	4
Microbiology	0	3	1	5	3	1
Pathology	1	0	0	1	0	0
Pharmacology	0	1	0	2	2	2
Physiology	3	2	2	3	0	1
Surgery	0	0	0	9	5	6
Totals Majoring in Medical Sciences	12	13	10	29	15	19
DENTAL						
Histology	0	0	0	5	7	3
Oral Pathology	0	0	0	0	1	1
Oral Surgery	0	0	0	1	2	2
Orthodontics	0	0	0	10	5	9
Pedodontics	0	0	0	1	2	0
Totals Majoring in Dental Sciences	0	0	0	17	17	15
PHARMACY						
Chemistry (Ph)	4	2	7	0	2	1
Pharmacognosy	1	0	0	0	0	0
Pharmacy	1	0	0	2	4	2
Totals Majoring in Pharmacy Sciences	6	2	7	2	6	3
NURSING						
Psychiatric Nursing	0	0	0	4	0	0
Totals Majoring in Nursing Sciences	0	0	0	4	0	0
TOTAL DEGREES CONFERRED, CHICAGO	18	15	17	52	38	37

TOTAL DEGREES CONFERRED

	1964-65	1963-64	1962-63
TOTAL, URBANA AND CHICAGO CAMPUSES	2,552	2,445	2,214

TABLE 3

SUMMARY OF FELLOWS IN RESIDENCE

1964-1965

TYPE OF FELLOWSHIP		NUMBER (As of January, 1965)	
I. Supported by University Funds			
A. University Fellows		124	
B. University Teaching Fellows		47	
C. Creative and Performing Arts Fellows		7	
D. Illinois College Fellows		7	
Subtotal			185
II. Supported by Industries, Endowments, and Foundations			
A. Industries and Endowments		130	
B. Woodrow Wilson Foundation		10	
Subtotal			140
III. Supported by the State of Illinois		7	
Subtotal			7
IV. Supported by the U. S. Government			
A. National Science Foundation		180	
1. Graduate Fellows	37		
2. Cooperative Fellows	33		
3. Trainees	56		
4. Science Faculty Fellows	6		
5. Mathematics Institute Fellows	48		
B. U. S. Department of Health, Education, and Welfare		303	
1. U. S. Public Health Service			
a. Predoctoral Fellows	35		
b. Trainees	135		
c. National Institute of Mental Health Fellows	24		
d. National Institute of General Medical Science Fellow	1		
2. U. S. Office of Education			
a. Predoctoral Fellows	24		
b. National Defense Education Act - Title IV Fellows	42		
c. National Defense Education Act - Title VI Fellows	7		
3. Other USDHEW			
a. Vocational Rehabilitation Administration Fellows	30		
b. U. S. Child Bureau Fellows	5		
C. Other U. S. Government		38	
1. National Aeronautics and Space Administration Fellows	27		
2. Atomic Energy Commission Fellows	11		
Subtotal			521
TOTAL, 1964-1965			853
TOTAL, 1963-1964 [a]			760

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[a] As of October, 1963.

TABLE 4

APPLICATIONS FOR FINANCIAL AID [a]

1965 - 1966

APPLICANTS BY AREAS OF INSTRUCTION

Preference	0	1	2	3	4	5	6	7	8	9	1965-66 Total	1964-65 Total
Fellowship	134	499	234	757	338	137	170	114	1020	689	4092	3898
Teaching Fellowship	20	156	73	129	44	31	41	8	315	114	931	822
Assistantship	60	202	112	189	142	104	114	120	335	360	1738	1609
Tuition and Fee Waiver	3	16	23	35	40	9	5	6	11	14	162	124
Not Indicated	3	30	10	38	33	12	5	6	32	31	200	56
1965-66 **TOTAL**	220	903	452	1148	597	293	335	254	1713	1208	7123	
1964-65 **TOTAL**	288	765	366	1083	500	256	267	175	1706	1103		6509
Increase 1965-66 over 1964-65	-24%	18%	23%	6%	19%	14%	25%	45%	1%	10%	9%	

CODE

Number	Areas of Instruction	Number	Areas of Instruction
0	Not known	5	Education
1	Humanities (pure and applied)	6	Biological Sciences (pure)
2	Arts (pure and applied)	7	Biological Sciences (applied)
3	Social Sciences (pure)	8	Physical Sciences (pure)
4.	Social Sciences (applied)	9	Physical Sciences (applied)

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[a] The data for this table were obtained from Office Cards submitted to the Graduate College by all Departments as of Friday, February 26, 1965.

TABLE 5

UNIVERSITY FELLOWSHIP AWARDS FOR 1965-1966 [a]

DEPARTMENT	NUMBER OF AWARDS [b]
Accountancy	5
Advertising	1
Aeronautical and Astronautical Engineering	3
Agricultural Economics	1
Agricultural Engineering	2
Agronomy	6
Animal Science	1
Anthropology	6
Architecture	3
Art	6
Astronomy	3
Biology	2
Botany	1
Business (Ph.D.)	--
Business Administration	2
Ceramic Engineering	2
Chemical Engineering	8
Chemistry	42
Civil Engineering	20
Classics	6
Communications	1
Comparative Literature	2
Computer Science	(1) [c]
Dairy Science	1
Economics	7
Education	7
Electrical Engineering	22
English	12
Entomology	--
Finance	1
Food Science	2
French	6
Geography	3

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[a] Figures tabulated as of March 26, 1965.

[b] Includes seven Illinois College and ten Creative and Performing Arts Fellowships.

[c] Awarded to student majoring in Electrical Engineering.

UNIVERSITY FELLOWSHIP AWARDS FOR 1965-1966 [a] (Continued)

DEPARTMENT	NUMBER OF AWARDS [b]
Geology	6
German	4
History	11
Home Economics	1
Journalism	1
Labor and Industrial Relations	2
Law	4
Library Science	3
Linguistics	2
Marketing	--
Mathematics	22
Mechanical Engineering	1
Music	13
Nuclear Engineering	2
Philosophy	6
Physical Education	1
Physics	30
Physiology-Biophysics	2
Plant Pathology	--
Political Science	9
Psychology	11
Radio-TV	1
Recreation	--
Slavic Languages and Literatures	3
Social Sciences	--
Social Work	--
Sociology	5
Spanish, Italian, and Portuguese	8
Speech and Theatre	5
Theoretical and Applied Mechanics	--
Urban Planning and Landscape Architecture	5
Zoology	2
TOTAL	344

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[a] Figures tabulated as of March 26, 1965.

[b] Includes seven Illinois College and ten Creative and Performing Arts Fellowships.

TABLE 6

FACULTY SUMMER FELLOWSHIP AWARDS

1960 - 1965 [a]

DEPARTMENT	Summer Sessions 1960	1961	1962	1963	1964	1965
Accountancy	-	1	-	-	-	1
Anthropology	-	-	1	1	-	1
Architecture	-	-	1	-	-	1
Art	4	4	4	6	8	6
Astronomy	-	-	-	1	-	-
Botany	1	1	1	1	1	-
Chemistry & Chemical Engineering	2	-	2	1	2	2
Civil Engineering	-	2	2	-	-	-
Classics	-	-	2	-	-	1
Dance	-	-	-	1	-	-
Division of General Studies	-	1	-	2	-	1
Economics	-	-	3	4	2	2
English	5	4	4	7	7	7
Entomology	1	2	-	-	-	-
Finance	-	-	-	-	1	2
French	-	1	2	1	2	2
Geography	-	-	1	-	-	-
Geology	1	1	-	2	1	1
German	1	-	-	1	2	2
Government & Public Affairs	1	-	-	-	-	-
History	1	2	2	-	2	3
Industrial Administration	-	-	-	-	1	1
Journalism	-	-	-	1	1	-
Law	-	-	-	1	-	3
Management	-	-	1	-	-	-
Mathematics	1	-	-	2	3	4
Music	2	2	1	1	2	1
Philosophy	1	1	1	2	2	-
Political Science	2	1	1	1	1	1
Psychology	1	-	1	1	1	-
Slavic Languages & Literatures	-	1	1	1	2	-
Sociology	1	1	1	-	1	1
Spanish, Italian, & Portuguese	-	-	-	1	2	2
Speech & Theatre	-	-	-	-	2	1
Urban Planning & Landscape Arch.	-	1	-	-	-	-
Zoology	2	1	1	-	2	1
Chicago Undergraduate Division	1	4	5	5	4	7
TOTAL	28	31	38	44	52	54

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[a] The figures represent awards and are not adjusted for the few resignations and declinations that ordinarily occur.

TABLE 7

GRADUATE SCHOOLS SELECTED BY NSF FELLOWS AND TRAINEES FOR 1965-66 [a]

GRADUATE FELLOWSHIP		COOPERATIVE FELLOWSHIP		ENGINEERING TRAINEESHIP	
Graduate School	Number of Awards [b]	Graduate School	Number of Awards [b]	Graduate School	Number of Awards
Harvard	188	Illinois	18	M. I. T.	114
M. I. T.	162	M. I. T.	15	Stanford	93
California (Berkeley)	149	Michigan	15	Michigan	90
Stanford	108	California (Berkeley)	14	Illinois	86
Princeton	78	Wisconsin	14	California (Berkeley)	84
Yale	72	Columbia	13	Purdue	70
Calif. Inst. of Tech.	59	Harvard	13	Cornell	60
Chicago	48	Purdue	13	Calif. Inst. of Tech.	56
Wisconsin	47	Texas	13	Minnesota	56
Michigan	37	Stanford	12	Northwestern	56
Johns Hopkins	29	New York	11	Wisconsin	54
Cornell	28	Minnesota	10	Washington	45
Illinois	28	Cornell	8	Columbia	44
Columbia	23	Iowa	7	Pennsylvania	44
Michigan State	13	California (Los Angeles)	7	Texas	43

---

[a] Schools are ranked according to the number of awards and only the first fifteen are shown. The figures represent awards only and dd not indicate resignations or the student's transfer to another institution.

[b] Only new awards are shown as data concerning renewals are not available.

TABLE 8

SOURCE OF FUNDS FOR FELLOWSHIPS [a]

1954, 1958, 1963, and 1964

YEAR	UNIVERSITY		INDUSTRIAL AND ENDOWED [b]		FEDERAL AND OTHER		TOTAL
	Amount	Percent of Total Aid	Amount	Percent of Total Aid	Amount	Percent of Total Aid	
1954	$115,975	50.0%	$105,483	45.5%	$ 10,400	4.5%	$ 231,858
1958	$246,000	40.1%	$225,900	36.8%	$ 141,545 [d]	23.1%	$ 613,445
1963 [e]	$391,365	24.7%	$266,156	16.8%	$ 926,090 [d]	58.5%	$1,583,611
1964 [f]	$430,050	21.5%	$301,598	15.1%	$1,271,121 [c] [d]	63.4%	$2,002,769

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[a] Figures relate to a twelve-month period beginning in September of the designated year. They include dependency allowance to the extent known.

[b] Includes Woodrow Wilson Fellowships.

[c] Includes federal funds and $21,100 granted by the State of Illinois.

[d] Does not include NSF Mathematics Institute Fellowships.

[e] Tabulated as of October, 1963.

[f] Tabulated as of January, 1965.

TABLE 9

NUMBER AND AMOUNT OF FELLOWSHIPS AND ASSISTANTSHIPS PER ENROLLED STUDENT BY AREA [a]

1964 - 1965

AREA	FELLOWSHIPS PER ENROLLED STUDENT		ASSISTANTSHIPS PER ENROLLED STUDENT		FELLOWSHIPS PLUS ASSISTANTSHIPS PER ENROLLED STUDENT	
	Number	Amount [b]	Number [c]	Amount [b]	Number	Amount [b]
Physical Sciences [d]	.175	$445	.610	$2012	.785	$2457
Engineering	.179	460	.483	1103	.662	1563
Biological Sciences	.184	543	.576	1505	.760	2048
Social Sciences	.106	230	.329	732	.435	962
Humanities	.093	212	.554	1111	.647	1323
Education	.065 [e]	150	.215 [e]	507	.280 [e]	657
Fine and Applied Arts	.086	194	.326	690	.412	884
ALL AREAS	.130	$323	.439	$1112	.569	$1435

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[a] Calculated as of January, 1965, figures include University, industrial and endowed, State of Illinois, and federal fellowships; and assistantships supported from both University and contract and grant funds. Summer Fellowships for Teaching Assistants are not included.

[b] Amounts used for calculation do not include the monetary equivalent of tuition and fees which are waived, exempted, or paid by the sponsor.

[c] Assistantships are calculated on a one-half time basis.

[d] Does not include NSF Mathematics Institute Fellowships.

[e] Enrollment upon which these figures are calculated includes a substantial number of students, such as public school teachers, who attend the University on a part-time basis and who are regularly employed off-campus.

TABLE 10

FELLOWSHIP SUBVENTION GRANTS TO DEPARTMENTS

1964-1965

DEPARTMENT	AMOUNT
Accountancy	$ 1,000
Aeronautical Engineering	2,500
Agricultural Economics	500
Agricultural Engineering	1,000
Agronomy	2,500
Animal Science	1,500
Anthropology	6,000
Architecture	1,500
Art	2,000
Astronomy	1,000
Botany	1,500
Business Administration	1,000
Ceramic Engineering	2,000
Chemistry	33,000
Chemical Engineering	6,500
Civil Engineering	18,500
Classics	1,000
Communications	1,000
Economics	5,500
Education	15,500
Electrical Engineering	14,500
English	6,500
Entomology	2,000
Finance	1,000
Food Science	1,500
French	3,000
Geography	1,500
Geology	4,000
Germanic Languages and Literatures	1,000
History	2,000
Horticulture	500
Journalism	$ 500
Law	1,500
Library Science	500
Life Science	500
Linguistics	3,500
Mathematics	13,500
Mechanical Engineering	7,000
Microbiology	1,500
Mining, Metallugry, and Petroleum Engineering	2,500
Music	8,000
Nuclear Engineering	5,000
Philosophy	1,000
Physical Education	500
Physical Education for Women	500
Physiology and Biophysics	3,500
Physics	14,500
Plant Pathology	500
Political Science	1,000
Psychology	6,000
Slavic Languages and Literatures	500
Social Work	1,000
Sociology	500
Spanish	4,000
Speech	4,000
Theoretical and Applied Mechanics	5,000
Urban Planning	1,000
Zoology	7,000
TOTAL	$237,000

TABLE 11

UNIVERSITY RESEARCH BOARD APPROPRIATIONS

1964-1965

	July 1, 1964 through June 30, 1965	
	Amount Appropriated	Research Assistants FTE[a]
For General University Purposes	$ 784,585	
For Humanities and Arts, Urbana	112,662	11.05
For Social Sciences, Urbana	201,484	21.94
For Education, Urbana	12,728	1.54
For Biological Sciences, Urbana	165,310	1.77
For Physical Sciences, Urbana	257,573	1.01
For Chicago Circle Campus	14,983	
TOTAL	$1,549,325	37.31
I. FOR GENERAL UNIVERSITY PURPOSES		
Administrative and General Services	$ 48,025	
Contributions on Behalf of the University	500	
Fellowships - Graduate Students	285,000	
- Faculty	75,450	
- Subvention Fund	138,750	
Provision of Special Facilities for Interdepartmental Use - Computer Science	150,000	
Library	86,860	
Subtotal	$ 784,585	
II. FOR HUMANITIES AND ARTS, URBANA		
Architecture	$ 11,589	1.13
Art	4,162	
Classics	9,070	1.00
English	18,280	3.23
English and Germanic Philology, Journal of	1,400	
French	7,700	1.57
Germanic Languages and Literatures	3,900	
Music	31,997	1.09
Philosophy	1,800	
Slavic Languages and Literatures	1,050	
Spanish, Italian, and Portuguese	15,567	1.98
Speech and Theatre	1,325	.26
Urban Planning and Landscape Architecture	4,822	.79
Subtotal	$ 112,662	11.05
III. FOR SOCIAL SCIENCES, URBANA		
Accountancy	$ 50	
Advertising	800	
Agricultural Economics	6,200	
Anthropology	20,612	1.12
Business Administration, Graduate School of	200	
Communications	900	

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[a] Salaries are included in the amounts shown in the dollar column.

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1964 through June 30, 1965	
	Amount Appropriated	Research Assistants FTE[a]
III. FOR SOCIAL SCIENCES, URBANA (Continued)		
Communications Research, Institute of	$ 12,117	.61
Community Planning, Bureau of	1,000	
Economic and Business Research, Bureau of	825	
Economics	14,280	2.29
Finance	2,100	.25
Geography	7,189	.87
Government and Public Affairs, Institute of	150	
History	42,323	9.17
Industrial Administration	250	
Labor and Industrial Relations, Institute of	250	
Law	8,065	.98
Library Science	2,800	
Marketing	200	
Political Science	9,706	1.48
Psychology	64,207	4.25
Recreation and Municipal Park Administration	175	
Social Work, Jane Addams Graduate School of	325	
Sociology	6,760	.92
Subtotal	$ 201,484	21.94
IV. FOR EDUCATION, URBANA		
Education	9,459	1.18
Exceptional Children, Institute for Research on	220	
Health and Safety Education	1,060	
Physical Education for Men	1,939	.36
University High School	50	
Subtotal	$ 12,728	1.54
V. FOR BIOLOGICAL SCIENCES, URBANA		
Agronomy	$ 7,200	
Animal Science	2,927	
Botany	21,855	
Dairy Science	150	
Entomology	34,443	.22
Forestry	200	
Home Economics	25	
Life Sciences, School of	650	
Microbiology	38,190	.50
Physiology and Biophysics	30,200	
Plant Pathology	5,000	
State Natural History Survey	25	
Zoology	20,745	1.05
Zoonoses Research, Center for	3,700	
Subtotal	165,310	1.77

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[a] Salaries are included in the amounts shown in the dollar column.

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1964 through June 30, 1965	
	Amount Appropriated	Research Assistants FTE[a]
VI. FOR PHYSICAL SCIENCES, URBANA		
Aeronautical and Astronautical Engineering	$ 14,475	
Agricultural Engineering	9,200	
Astronomy	400	
Chemistry and Chemical Engineering	65,287	.87
Civil Engineering	36,050	
Computer Science	7,500	
Coordinated Science Laboratory	6,000	
Electrical Engineering	36,691	
General Engineering	200	
Geology	33,255	
Mathematics	300	
Mechanical and Industrial Engineering	20,935	
Mining, Metallurgy, and Petroleum Engineering	7,599	
Nuclear Engineering	5,289	.14
Physics	11,432	
State Geological Survey	25	
State Water Survey	200	
Theoretical and Applied Mechanics	2,735	
Subtotal	$ 257,573	1.01
VII. FOR CHICAGO CIRCLE CAMPUS		
Biological Sciences	$ 9,205	
Physical Sciences	1,000	
Social Sciences	4,778	
Subtotal	$ 14,983	

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[a] Salaries are included in the amounts shown in the dollar column.

TABLE 12-A

STATISTICAL SUMMARY OF APPLICATIONS FOR GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1963, through June 30, 1964

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1965)					APPLICATIONS PENDING (as of June 30, 1965)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	13	$ 2,690,350	9	$ 1,611,177	$ 1,109,707	1	$ 91,740	3	$ 987,433
Humanities	15	1,788,222	10	356,855	322,180	4	1,415,273	1	16,094
Arts	9	45,497	9	45,497	45,497				
Social Sciences, Pure	63	1,723,960	51	1,179,498	923,035	9	196,342	3	348,120
Social Sciences, Applied	37	928,371	25	457,874	403,693	7	182,877	5	287,620
Education	59	7,991,367	36	2,510,219	2,299,339	20	5,462,257	3	18,891
Biological Sciences, Pure	102	8,724,702	82	2,941,693	2,561,062	16	5,650,269	4	132,740
Biological Sciences, Applied	181	3,269,462	155	2,501,608	2,252,503	18	582,875	8	184,979
Physical Sciences, Pure	147	15,431,831	111	12,378,981	9,182,479	29	2,761,716	7	291,134
Physical Sciences, Applied	291	21,953,934	172	11,306,272	9,606,248	101	5,277,860	18	5,369,802
Total	917	$64,547,696	660	$35,289,674	$28,705,743	205	$21,621,209	52	$ 7,636,813

TABLE 12-B

STATISTICAL SUMMARY OF APPLICATIONS FOR GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1964, through June 30, 1965

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1965)					APPLICATIONS PENDING (as of June 30, 1965)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	20	$ 5,632,738	6	$ 1,451,798	$ 374,622	1	$ 31,577	13	$ 4,149,363
Humanities	14	1,297,338	2	761,401	761,980	1	87,773	11	448,164
Arts	11	580,305	5	3,225	2,925			6	577,080
Social Sciences, Pure	84	8,504,062	34	762,124	814,272	11	472,067	39	7,269,871
Social Sciences, Applied	43	1,813,391	28	858,059	832,470	2	48,990	13	906,342
Education	61	10,105,292	17	1,130,661	999,746	8	4,516,464	36	4,458,167
Biological Sciences, Pure	84	3,615,276	43	1,452,318	1,075,809	1	40,200	40	2,122,758
Biological Sciences, Applied	177	3,523,948	106	1,307,190	1,181,617	5	216,478	66	2,000,280
Physical Sciences, Pure	166	12,358,500	61	2,700,100	1,985,812	19	1,601,563	86	8,056,837
Physical Sciences, Applied	328	22,849,183	141	8,191,554	5,771,203	38	2,576,116	149	12,081,513
Total	988	$70,280,033	443	$18,618,430	$13,800,456	86	$ 9,591,228	459	$42,171,375

TABLE 13

INSTITUTIONAL GRANT FUNDS, 1964-1965

A. National Science Foundation Institutional Grant

Received and assigned entirely to Center for Advanced Study		$150,000

B. Grants Provided in Conjunction with Fellowships

Receipts:

NASA	$ 67,500	
NSF Cooperative Fellows	41,250	
NSF Science Faculty Fellows	7,916	
NSF National Fellows	47,500	
NDEA Fellows	53,750	
Office of Education Fellows	31,250	
USPHS Fellows	50,555	
Woodrow Wilson Fellows	20,000	
NSF Grad Trainees	140,000	
State of Illinois	4,500	
TOTAL		$464,221

Allocations:

Administrative and General Services	$ 23,289
Aeronautical and Astronautical Engineering	2,300
Agricultural Engineering	200
Agronomy	200
Animal Science	2,927
Astronomy	400
Center for Zoonoses	200
Chemistry and Chemical Engineering	45,600
Chicago Circle	6,186
Civil Engineering	34,000
Computer Science	9,200
Dairy Science	150
Dance	2,000
Economics	3,632
Education	43,100
Electrical Engineering	2,200
Electron Microscope Laboratory	336
English	1,432
Forestry	200
General Engineering	200
Geography	200
Health and Safety	1,000
Home Economics	25
Journalism and Communications	2,000
Law	2,000
Library Science	2,000

INSTITUTIONAL GRANT FUNDS (Continued)

Allocations: (Continued)

Life Sciences	61	
Mathematics	300	
Mechanical Engineering	20,935	
Microbiology	50	
Mining, Metallurgy and Petroleum Engineering	165	
Music	320	
Nuclear Engineering	2,425	
Physical Education for Women	2,334	
Physical Environment Unit	450	
Physics	11,432	
Physiology and Biophysics	6,606	
Plant Pathology	5,000	
Psychology	29,166	
Radiocarbon Laboratory	8,400	
Sociology	551	
Spanish, Italian and Portuguese	593	
State Geological Survey	25	
State Natural History Survey	25	
State Water Survey	200	
Theoretical and Applied Mechanics	2,735	
Zoology	10,000	
Fellowship Stipends, Tuition and Fees, Medical Fees	31,380	
Fellowship Subvention (See TABLE 10 for departmental allocations)[a/]		
NDEA Fellowships	21,500	
NSF Cooperative and Science Faculty Fellowships	18,000	
NSF National Fellowships	19,000	
USPHS Predoctoral Fellowships	22,500	
Office of Education Fellowships	13,000	
NASA Fellowships	13,500	
Woodrow Wilson Fellowships	5,000	
NSF Grad Trainees	28,000	
TOTAL		$458,630

[a/] Includes $96,500 Research Board Subvention

TABLE 14

UNIVERSITY PRESS PUBLICATIONS [a]

May 1, 1964 to May 1, 1965

THE ILLINOIS STUDIES SERIES

Books Published

Deetz: Dynamics of Stylistic Change in Arikara Ceramics (AN)
Kahane, Pietrangeli: The Krater and the Grail (LL)
Kimball: Czech Nationalism: A Stuty of the National Theatre Movement (SS)
Levine and Ivens: The Coccidian Parasites of Rodents (BM)
Reiman: Shelley's "The Triumph of Life" (LL)
Smith, et al: Herpetological Type-Specimens in the University of Illinois Museum of Natural History (BM)
Valdes: Death in the Literature of Unamuno (LL)

Books in Process

Alkire: Lamotrek Atoll and Inter-Island Socioeconomic Ties (AN)
Daubs: A Monograph of Lemnaceae (BM)
Nauert: Agrippa and the Crisis in Renaissance Thought (LL)
Steward: Modernization of Native Societies (four monographs, AN)

ILINI BOOKS (Paperback Series)

Books Published

IB-16 Randall: Constitutional Problems under Lincoln
IB-17 Flandrau: Viva Mexico! (edited by Gardiner)
IB-18 Herrick: Comic Theory in the Sixteenth Century
IB-19 Jackson (ed.): Black Hawk
IB-20 Scott: Mexican Government in Transition

Books in Process

IB-21 Kendall: John Locke and the Doctrine of Majority Rule
IB-22 James: The Framing of the Fourteenth Amendment
IB-23 Christman: The Mind and Spirit of John Peter Altgeld
IB-24 Whitnah: History of the United States Weather Bureau
IB-25 Siebert: Freedom of the Press in England
IB-26 Lacy: Freedom and Communication
IB-27 Kelley: The Early Development of Henry James
IB-28 Winter: Beyond the Mountains of the Moon
IB-29 LaFave (ed.): Law in the Soviet Society

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[a] The titles shown in the Illinois Studies Series were financed partly from funds of the Graduate College and partly from the Press Revolving Fund. The non-serial publications were financed from the Scholarly Publications Account in the Graduate College and the Revolving Fund of the University Press. Grants from the Ford Foundation also aided in financing the scholarly publications program.

NON-SERIAL PUBLICATIONS

Books Published

Abbott: Index Verborum in Ciceronis Rhetorica
Baldwin: On the Compositional Genetics of The Comedy of Errors
Boyce (ed.): Regional Development of the Wabash Basin
Carrozzi (translator): Hydrogeology (by J. B. Lamarck)
Chapin: Urban Land Use Planning (second edition)
Contemporary American Painting and Sculpture (Festival Catalog)
Cronbach, Gleser: Psychological Tests and Personnel Decisions (second edition)
Edelman: The Symbolic Uses of Politics
Edelman and Fleming: The Politics of Wage-Price Decisions
Gardiner (ed.): The Papers of William Hickling Prescott
Heitman: Historical Register and Dictionary of the U. S. Army
Herrick: Italian Tragedy in the Renaissance
Hultzen, Allen, Miron: Tables of Transitional Frequencies of English Phonemes
Johnson, Porter: National Party Platforms (Supplement)
Kelly (ed.): Ultrasonic Energy -- Biological Investigations and Medical Applications
Lee: The Cabal
Levine (ed.): Malaria in the Interior Valley of North America (by Drake)
McColley: Slavery and Jeffersonian Virginia
McDermott: The French in the Mississippi Valley
McGregor: Southwestern Archaeology (second edition)
McVittie: General Relativity and Cosmology (second edition)
Nevins (ed.): Lincoln and the Gettysburg Address
Peterson: Magazines in the Twentieth Century (second edition)
Van Dyke: Pride and Power

Books in Process

Breimyer: Individual Freedom and the Economic Organization of Agriculture
Conrad: The Forgotten Farmers: The Story of Sharecroppers in the New Deal
Crosby(ed.): Edicion Critica de la Politica de Dios de Quevedo
Fairbanks, Grant: Readings in Experimental Phonetics
Flanders: Nauvoo: Kingdom on the Mississippi
Fleming: The Labor Arbitration Process
Haile: The History of Doctor Johann Faustus
Hannah: Resource Book for Rural Universities in the Developing Countries
Hicken: Illinois in the Civil War
LaFave (ed.): Law in the Soviet Society (clothbound edition)
Moles: Information Theory and Esthetic Perception
Paul: Edmund Wilson: A Study of Literary Vocation in our Time
Scott: On the Poetry of Mark Twain
Seagrave, Thomas: The Songs of the Minnesingers
Shattuck: The Shakespeare Promptbooks
Shover: The Cornbelt Rebellion: The Farmers' Holiday Association
Spencer: Five Restoration Adaptations of Shakespeare
Sturmthal: White Collar Unionism
Zucker: George Norris: Gentle Knight of Democracy

TABLE 15

ENROLLMENT AND DEGREES CONFERRED
CHICAGO MEDICAL CENTER
1964-1965

DEPARTMENT	1964 Summer	1964 Fall	1964-65 Winter	1965 Spring	M.S. Degrees	Ph.D. Degrees
MEDICAL						
Anatomy	15	22	21	20	1	4
Biochemistry	57	74	65	64	8	4
Microbiology	21	25	24	26	5	-
Pathology	5	7	8	9	1	1
Pharmacology	24	22	23	24	2	-
Physiology	27	33	32	31	3	3
Radiology	--	2	2	2	-	-
Surgery	11	11	10	14	9	-
Orthopedic Surgery	1	2	1	1	-	-
Totals Majoring in Medical Sciences	161	198	186	191	29	12
DENTAL						
Histology	6	2	3	4	5	-
Oral Pathology	1	3	3	3	-	-
Oral Surgery	2	5	4	4	1	-
Orthodontics	9	9	9	11	10	-
Pedodontics	2	1	1	1	1	-
Totals Majoring in Dental Sciences	20	20	20	23	17	0
PHARMACY						
Chemistry	21	28	27	25	-	4
Pharmacognosy	--	3	3	2	-	1
Pharmacy	12	20	19	19	2	1
Totals Majoring in Pharmacy Sciences	33	51	49	46	2	6
NURSING						
Psychiatric Nursing	--	13	13	12	4	-
Totals Majoring in Nursing Sciences	0	13	13	12	4	0
GRAND TOTAL	214	282	268	272	52	18

TABLE 16

CLASSIFICATION OF STUDENTS AT CHICAGO MEDICAL CENTER 1964-1965

ACADEMIC BACKGROUND

Doctor of Dentistry	28	120 (43%)
Doctor of Medicine	27	
Medical Students	18	
Dental Students	2	
Pharmacy Students	1	
Bachelor of Science in Nursing	11	
Bachelor of Science in Pharmacy	33	
Bachelor of Science		162 (57%)

PERMANENT RESIDENCE AT TIME OF APPLICATION

California	2	
Connecticut	3	
Georgia	2	
Hawaii	1	
Idaho	1	
Illinois	187	
Indiana	3	
Iowa	1	
Massachusetts	3	
Michigan	5	
Minnesota	2	
Missouri	2	
New Jersey	6	
New York	8	
Ohio	4	
Oregon	2	
Pennsylvania	5	
Texas	1	
Tennessee	1	
Utah	1	
Vermont	1	
Virginia	1	
Washington	1	
West Virginia	2	
Wisconsin	2	
TOTAL U. S.	247	(87%)

Australia	1	
Canada	4	
China	4	
Egypt	3	
England	1	
Germany	1	
Ghana	1	
Haiti	1	
India	5	
Israel	1	
Japan	1	
Jordan	1	
Korea	2	
Lebanon	3	
Panama	1	
Philippines	5	
TOTAL FOREIGN	35	(13%)

TABLE 17

CHICAGO MEDICAL CENTER
CURRENT TRAINING GRANTS
ADMINISTERED THROUGH GRADUATE COLLEGE OFFICE
1964-1965

COLLEGE OF DENTISTRY	
Dr. James	$ 42,848
Dr. Yaeger	25,155
Dr. Yale	52,403
COLLEGE OF MEDICINE	
Anatomy	
Dr. Reynolds	32,000
Dr. Schmidt	32,230
Biological Chemistry	
Dr. Winzler	65,920
Medicine	
Dr. Dowling	94,409
Dr. Samter	18,576
Dr. Schwartz	33,804
Opthalmology	
Dr. Kronfeld	52,418
Orthopedic Surgery	
Dr. Ray	29,600
Otolaryngology	
Dr. Lederer	44,022
Pediatrics	
Dr. Cornblath	24,000
Dr. Schulman	39,084
Pharmacology	
Dr. Schulman	$ 81,782
Dr. C. Smith	25,000
Dr. Unna	161,546
Physical Medicine	
Dr. Abramson	20,328
Physiology	
Dr. Wolf	66,001
Psychiatry	
Dr. Cartwright	19,872
Dr. Gyarfas	100,571
Dr. Gyarfas	51,840
Dr. Sabshin	45,367
Dr. Sabshin	50,000
Dr. Sabshin	8,013
COLLEGE OF NURSING	
Dr. Lohr	18,239
Dr. Lohr	102,216
Dean Mullane	35,461
COLLEGE OF PHARMACY	
Chemistry (Pharmaceutical)	
Dr. Coviello	14,000
TOTAL	$1,386,705

TABLE 18

APPROPRIATIONS BY CHICAGO MEDICAL CENTER SUBCOMMITTEE OF THE UNIVERSITY RESEARCH BOARD

1964-1965

DEPARTMENT	APPROPRIATIONS
I. MEDICAL	
Anatomy	$ 2,180
Biological Chemistry	11,995
Medicine	8,595
Microbiology	7,204
Orthopedic Surgery	1,650
Otolaryngology	2,000
Pathology	14,585
Pediatrics	5,175
Pharmacology	3,705
Physiology	2,700
Radiology	3,800
Surgery	900
Subtotal	$ 64,489
II. DENTAL	
Oral Pathology	$ 4,945
III. PHARMACY	
Chemistry (Pharmaceutical)	$ 18,113
Pharmacognosy	4,186
Pharmacy	2,590
Subtotal	$ 24,889
IV. OTHER	
Subvention to departments in behalf of 1963-64 University Fellows - 8 at $500 each	$ 4,000
Subvention to departments in behalf of 1964-65 University Fellows - 6 at $500 each	3,000
Graduate College Fellows - Summer Quarter 1965	6,000
Illustration Studios - Equipment Pool	3,350
Computer Facilities	96,444
Subtotal	$112,794
TOTAL	$207,117

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GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

1965-1966

ANNUAL REPORT

GRADUATE COLLEGE, UNIVERSITY OF ILLINOIS

Urbana and Chicago, Illinois

ADMINISTRATIVE STAFF

Daniel Alpert, Dean of the Graduate College

Milan V. Novak, Associate Dean for the Graduate Division, Chicago Medical Center

R. Curtis Retherford, Associate Dean for the Graduate Division, Chicago Circle

Harold R. Snyder, Associate Dean and Secretary, University Research Board

Marvin Frankel, Associate Dean

Stanton Millet, Associate Dean

Vincent I. West, Associate Dean

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EXECUTIVE COMMITTEE OF THE GRADUATE COLLEGE, 1965-1966

Daniel Alpert, Ph.D., Dean of the Graduate College; Professor of Physics

Paul T. Bateman, Ph.D., Professor of Mathematics; Associate Head of the Department of Mathematics

John E. Cribbet, J.D., Professor of Law

Warren F. Doolittle, Jr., M.F.A., Professor of Art

John F. Due, Ph.D., Professor of Economics; Chairman of the Department of Economics

Murray J. Edelman, Ph.D., Professor of Political Science, Department of Political Science and Institute of Labor and Industrial Relations; Chairman of the Department of Political Science

Herbert Goldhor, Ph.D., Professor of Library Science; Director of the Graduate School of Library Science

David Gottlieb, Ph.D., Professor of Plant Pathology

Harold G. Halcrow, Ph.D., Professor of Agricultural Economics; Head of the Department of Agricultural Economics

William J. Hall, Ph.D., Professor of Civil Engineering

Kenneth B. Henderson, Ph.D., Professor of Secondary and Continuing Education

David Lazarus, Ph.D., Professor of Physics

Nelson J. Leonard, Ph.D., D.Sc., Professor of Organic Chemistry

Milan V. Novak, Ph.D., M.D., D.Sc., Associate Dean of the Graduate College at the Medical Center, Chicago; Professor of Microbiology; Head of the Department of Microbiology

Sherman Paul, Ph.D., Professor of English

R. Curtis Retherford, Ph.D., Associate Dean of the Graduate College at Chicago Circle; Professor of Physics

Stanley P. Wyatt, Jr., Ph.D., Professor of Astronomy

I. THE ADMINISTRATION OF GRADUATE EDUCATION

A. Introduction

The activities of the Graduate College in 1965-66, as in previous years, focus on the critical problems of maintaining high standards of graduate teaching and research in the face of rapid expansion, changing patterns of advanced education, and new demands on the resources of the University. These activities are described in some detail, with appropriate statistical analysis, in following sections of this annual report.

The cooperative program to screen applicants for admission in the academic departments, the Graduate College, and the Office of Graduate and Foreign Admissions, a venture begun in 1964-65, has shown marked success. The median admission average for 2,358 applicants approved for admission in September, 1965, was 4.25, ranging (by general area of study) from a high median of 4.39 to a low of 4.11, while 26 per cent of the total approved applicants were between 4.5 and 5.0.

In the course of the year, the Graduate College Executive Committee approved and sent to the three University Senates proposals for revision of three general requirements bearing on the nature of the preliminary examination, the foreign language requirement, and the minor that is required in doctoral programs. Approval not requiring Senate action was also given to a revised procedure for appointment to the Graduate Faculty and a proposal to substitute examinations administered by the Educational Testing Service for our present reading examinations in French and German.

On April 1, administrative jurisdiction over the activities of the Children's Research Center passed from the Provost to the Graduate College. The center, established in 1963, is an inter-disciplinary unit involving the Institute for Research on Exceptional Children, the Jane Addams Graduate School of Social Work, and the departments of special education, psychology, speech and theatre, and recreation and municipal park administration. The Executive Committee and various subcommittees of the Graduate College have also been heavily involved in the planning and discussion associated with a variety of other activities and proposals having an interdisciplinary character. Among these are development of proposals for the creation of a Society of Fellows to be attached to the Center for Advanced Study, a detailed plan of physical facilities that might be appropriate to the Center, a proposal to establish a Center for Computer-Based Education and Research, the study of ways and means to provide appropriate training for teachers in junior colleges, and preliminary study of an intermediate degree suggested by several of the universities associated in the Committee on Institutional Cooperation.

A significant portion of Graduate College activity has been devoted to establishing advanced degree programs at the Chicago Circle campus of the University. Evaluating recommendations for appointment to the Graduate Faculty, study and approval of new degree programs, and the continuing problems of liason and administration that are associated with offering graduate work on three campuses have made considerable demands on members of the Graduate College faculty and staff, particularly at Urbana and at Chicago Circle.

B. Enrollment

Graduate College enrollment has continued to increase at the rate of 9 per cent per year. A total of 11,027 persons registered in the Graduate College in 1965-66, compared with 10,116 in 1964-65; 9,280 in the previous year; and 5,104 ten years ago. Included in the 1965-66 total are 7,810 men and 3,217 women. It should be noted, too, that graduate summer session enrollment has shown great increases. A detailed comparison of enrollment figures by department for a four-year period will be found in Table 1.

C. Degrees Conferred

In 1965-66, the Graduate College conferred 2,781 advanced degrees at the Urbana Campus and a total of 76 degrees at Chicago Medical Center. See Table 2.

D. Courses, Curricula, and Graduate Faculty

During the past year, 160 new and revised course proposals (110 new, 50 revised) were submitted to the Executive Committee of the Graduate College for consideration. Of these, 152 were approved. The Committee approved in principle the establishment of a Department of Meteorology, and recommended the following new degree programs at Urbana and Chicago Circle:

At Urbana

Master of Science and Doctor of Philosophy in Computer Science

Master of Arts and Doctor of Philosophy in Portuguese

Master of Science in Industrial Engineering

Master of Science in Teaching of Earth Science

Master of Arts in Teaching of English as a Second Language

At Chicago Circle

Master of Science in Biological Sciences

Master of Science in Chemistry

Master of Arts in English

Master of Science in Geology

Master of Arts in German

Master of Arts in History

Master of Science or Master of Arts in Mathematics

Master of Science in Materials Engineering

Master of Arts in Philosophy

Master of Science in Physics

Master of Arts in Psychology

Master of Science in Thermosciences

As a result of recommendations presented last year by the ad hoc committee appointed to study general regulations and procedures of the Graduate College, the Subcommittee on Graduate Faculty continues its study of all nominations for full standing on the Graduate Faculty, but reports formally only on those recommendations for master's and limited standing that seem to require discussion and judgment by the entire committee rather than by smaller groups. This change in procedure was made necessary by the unusual increase in the number of nominations that has been caused, in large part, by the establishment of a new graduate faculty at Chicago Circle. In 1964-65, for example, the total of those nominated for full standing was 65; in 1965-66, the total was 159, an increase of 145 per cent. From Chicago Circle, 56 nominations for full standing were received, and 33 (59 per cent) were approved. From Urbana, there were 103 nominations, with 62 (60 per cent) receiving approval.

E. Institutional Cooperation

Now in its third year of operation, the Traveling Scholar Program of the Committee on Institutional Cooperation continues to provide opportunities for graduate students from any one of the eleven associated universities to make use of facilities and instruction available at another C.I.C. campus. During 1965-66, seven Traveling Scholars were in residence on this campus and forty-three graduate students from the University of Illinois were studying at other C.I.C. institutions. Twenty of the forty-three University of Illinois Traveling Scholars were engaging in the study of foreign languages at special C.I.C. Institutes.

II. APPOINTMENTS AND AWARDS FOR GRADUATE STUDENTS

A. General

During the academic year, 1965-66, 1,008 students held fellowships administered by the Graduate College representing an increase of 19 per cent over the previous year. Fellowships supported by various federal agencies increased from 61 per cent to 68.5 per cent of all graduate fellowships, and the University funds supported slightly more than 20 per cent of all graduate fellowships. The remaining 11.5 per cent were supported by industries, firms, and foundations and by the State of Illinois.

B. University Fellowships

1. Selection of Fellows. The maximum number of applicants which each department could recommend for University Fellowships was determined in such a way that the total number recommended would be substantially reduced. There were, nevertheless, 831 applications to be reviewed by three committees.

Recommended applications of continuing students were screened by a special subcommittee. Those of new students were screened by the Graduate Fellowship Committee, and applications for Creative and Performing Arts were screened by a subcommittee. The membership of each of these committees was as follows:

GRADUATE FELLOWSHIP COMMITTEE

Vincent I. West, Chairman
L. P. Hager
Jackson Campbell
D. E. Mapother
D. R. Peterson
Angelina Pietrangeli
A. R. Williams
R. E. Williams
M. E. Van Valkenburg
R. S. Wolfe

Subcommittee for
CONTINUING STUDENTS

D. E. Mapother, Chairman
Robert Ornstein
L. R. Tucker
J. G. Sternburg
David Curtin

Subcommittee for the
CREATIVE AND PERFORMING ARTS

G. W. Binkerd, Chairman
E. H. Betts
Barnard Hewitt
W. M. Keith

2. Number and Distribution of Fellowship Awards. For information concerning the fellowships held in the year of this report, see Table 3. For the coming year, the University Fellowship Committee offered awards to 399 applicants. The distribution of these awards among departments is shown in Table 4. As is customary, the awards that could be offered was determined by the acceptance ratio of the previous year. For 1965-66, the rates of acceptance were 90 per cent for continuing students and 43 per cent for new students. Comparable rates for 1966-67 were 93 per cent and 41 per cent, respectively.

3. Special University Fellowship Programs.

a. Fellows in the Creative and Performing Arts. There were again ten fellows appointed in this program. Artists are selected on the basis of their artistic achievement and promise, rather than primarily on the traditional standards of scholarship. The program appears to be filling an urgent need in supporting excellence in the arts at the graduate level. Departmental nominations for these awards are reviewed by a special subcommittee, which makes recommendations to the Dean of the Graduate College. These fellowships are included in the fellowship budget and quota of the Graduate College.

b. Illinois College Fellowships. Each four-year private college in the state of Illinois that awarded baccalaureate degrees to 12 or more persons who subsequently received doctoral degrees from the University of Illinois in the last 20 years was invited to nominate one of its outstanding seniors for a College Fellowship. Ten colleges qualified for these awards and each of them nominated candidates who were approved by the departments in which they wished to study. Six of the ten candidates have accepted College Fellowships for 1966-67.

Each four-year college in the state which did not qualify for a College Fellowship nominee, as described above, was invited to nominate two students for tuition and fee waivers. Each college which did qualify was invited to also nominate two students for tuition and fee waivers. This program continues to be well received and appears to be fulfilling its objectives of bringing excellent students to the University and contributing to the cordial relations between the University and other institutions of higher learning in Illinois.

c. Summer Fellowships for Teaching Assistants. The program is intended to encourage excellent students to become college teachers as well as to give special consideration to graduate students who are contributing to our teaching program and gaining experience as college teachers. Eighty-one awards, of $450 each, were made for the summer of 1966.

d. Dissertation Fellowships. A special experimental program was initiated this year to provide fellowship support to outstanding students in the humanities and social sciences. Ten awards have been made for 1966-67. A special review of this program will be undertaken at the end of the fellowship year.

4. Tuition and Fee Waivers. In order to encourage well qualified students to undertake graduate studies, the Graduate College has awarded tuition and fee waivers to students nominated for University Fellowships who did not receive awards, as well as to students nominated by departments, under a quota system. The applicants are expected to have records which show academic achievement and promise. This program is much more useful in some departments than in others, but the nomination and screening procedures have resulted in acceptances in areas where they are most needed. The number of tuition and fee waivers issued for next year is expected to be about 125.

C. Fellowships Supported by Federal Agencies

1. General. Fellowship and traineeship programs of the National Science Foundation and of the Office of Education continue to expand.

In particular, the expansion of the National Defense Graduate Fellowships and the inauguration of fellowships for teachers and librarians have increased support in many areas. The tables show, however, that fellowship support for other areas continues substantially below that for the physical and natural sciences.

2. Types of Fellowships Awarded. Table 3 presents information on the various types of fellowships supported in 1965-66. In 1966-67, Experienced Teacher Fellowships, Prospective Teacher Fellowships, and Fellowships in Librarianship will be new categories of awards. Data on some categories are incomplete for 1966-67. For other categories, the number of awards for 1966-67 is given below with comparable figures for 1965-66.

FELLOWSHIP AWARDS IN SELECTED CATEGORIES

	1965-66	1966-67
NATIONAL SCIENCE FOUNDATION		
Cooperative Fellowships	38	6
Graduate Fellowships	35	58
Traineeships	86	106
Summer Fellowships for Teaching Assts.	43	27
OFFICE OF EDUCATION		
NDEA Title IV Fellowships	92	174
NDEA Title VI Fellowships	11	18
Experienced Teacher Fellowships	--	17
Prospective Teacher Fellowships	--	24
OTHER		
NASA Traineeships	42	45

The NSF Cooperative Fellowship program has been discontinued. The 6 awards for 1966-67 are renewals for students who received two-year awards in 1965-66. The increase in the number of new NDEA Title IV fellowships was accompanied by a statement that at least three-quarters that many would be awarded in each of the next two years, so that the number of these fellowships in the fall of 1968 may be expected to be not less than 238. The 41 fellowships awarded in the Experienced and Prospective Teacher Fellowship Programs are for students who are candidates for advanced degrees other than doctoral degrees. They are intended to prepare people for careers in secondary education.

D. Sources and Distribution of Financial Aid

Stipends of fellows during 1965-66 totaled over two and one-half million dollars. University funds for fellowship stipends amounted to 475 thousand dollars, and the stipends for industrial and endowed fellowships amounted to about 259 thousand dollars. Stipends of assistants are, however, the most important source of support for graduate students. These amounted to nearly 7 million dollars during 1965-66. The tables show the distribution of financial aid among areas of study. In both fellowship and assistantship support, the fine arts and humanities and social sciences are substantially below the physical and natural sciences and engineering.

E. Fellowship Subvention to Departments

Subventions of $500 per fellow were granted to major departments of fellows in most programs. These funds have come from the University Research Board and from institutional allowances made by agencies which sponsored fellowships. Payments are intended to support graduate education and research, and are expended by departments with the approval of the Graduate College. They are used for research expenses and travel of the fellows, as well as to provide or augment fellowship stipends, and for a variety of other purposes.

F. Future Considerations

The continued growth of federal fellowship programs has led to review of policies and procedures in administering the University Fellowship program. This review has been conducted by the Fellowship Committee and by an *ad hoc* committee on changes in the fellowship program. The Fellowship Committee will again seek means of improving the procedures for selecting University fellows during the next academic year.

III. SUPPORT OF RESEARCH

A. The Center for Advanced Study

The Center for Advanced Study, activated in 1959, continues to be a successful means for recognizing and encouraging research, creative achievement, and scholarship by the University's outstanding professors.

1. *Members.* The newest members, appointed for a five-year term beginning September 1, 1966, are *Charles E. Osgood*, Professor of Psychology and Research Professor in the Institute of Communications Research; *Sherman Paul*, Professor of English; and *Eugene I. Rabinowitch*, Research Professor of Botany and Biophysics. They join Professors *John Bardeen*, electrical engineering and physics; *Joseph Doob*, mathematics; *Harry Drickamer*, chemistry and chemical engineering; *Sol Spiegelman*, microbiology; *Julian Steward*, anthropology; and *Alexander Turyn*, classics.

2. *Associate Members, 1965-66.* Twelve scholars were named to associate membership in 1965-66. They were Professors *Lejaren A. Hiller* of the School of Music; *Harold M. Hyman* of the Department of History; *Houssam M. Karara* of the Department of Civil Engineering; *Therald Moeller* of the Department of Chemistry and Chemical Engineering; *Kazuo Ono* of the University of Tokyo, Japan, as a Visiting Professor of the Department of Physics, Chicago Circle; *Robert Ornstein* of the Department of English; Professor *Ernst A. Philippson* of the Department of Germanic Languages and Literatures; *Louis Schneider* of the Department of Sociology; *Charles H. Shattuck*

of the Department of English; Raymond P. Stearns of the Department of History; William F. Vinen of the University of Birmingham, England, as a Visiting Professor of the Department of Physics; John C. Wheatley of the Department of Physics. More explicit descriptions of their particular fields of interest will be found in the Annual Report of 1964-65, and in the brochure, "The Center for Advanced Study."

3. Associate Members, 1966-67. Appointment of 16 associate members for 1966-67 was recommended by the Executive Committee of the Center after careful consideration of all applications:

Ernest A. Connally, Professor of Architecture, for the first semester (three-fourths time) and the second semester to complete a history of Spanish colonial architecture in the United States.

William F. Connell, Visiting Professor of History of Education, for the first semester, to carry on a definitive study of world education in the twentieth century.

James O. Crosby, Professor of Spanish and Italian, for one year, to engage in research for a critical edition of an unpublished version of the "Suenos," or "Visions of Hell," five baroque satires by the major Spanish writer Francisco de Quevedo (1580-1645).

David Y. Curtin, Professor of Organic Chemistry, for one year, to supervise a research program in the area of organic reaction mechanisms studies, with particular emphasis on reactions occurring in crystalline substances.

Max H. Fisch, Professor of Philosophy, for the second semester, to complete the first volume of his two-volume philosophical "Biography of Charles S. Peirce"; to prepare "Biographical Memoirs of Benjamin Peirce and of Charles S. Peirce" for the National Academy of Sciences; to continue work on a new edition of the writings of Charles S. Peirce; and to continue a number of subsidiary studies in the history and philosophy of science in the United States from about 1840 to about 1914.

Irwin C. Gunsalus, Professor of Biochemistry, for one year, to carry on research in the delineation of the relations between adaptive metabolism and the enzymic and genetic patterns that help its establishment and functioning.

Joseph R. Gusfield, Professor of Sociology, for the first semester, to continue work on a book-length study of the contemporary Indian middle class.

John D. Jackson, Professor of Physics, for one year, to engage in theoretical physics research of peripheral production processes and other strong interactions of fundamental particles.

Benjamin B. Johnston, Associate Professor of Music, for one year and the summer session, to work on an orchestral composition, and a composition to be synthesized in an electronic music studio.

Gilbert Osofsky, Assistant Professor of History, for one year, to carry out research for a historical study of the Negro in the Great Depression.

Chester P. Siess, Professor of Civil Engineering, for one year (half-time), to carry on research and prepare a monograph on the mechanical behavior of structural concrete elements.

Michio Suzuki, Professor of Mathematics, for one year, to continue research on the structure of finite groups.

William W. Tait, Associate Professor of Philosophy, Chicago Circle, for one year, to carry on research in the substitution method, cut elimination, and constructive reasoning; to complete a paper on continuous functionals of higher types; and to complete a final version of lectures on metamathematics.

Norman Thompson, Visiting Professor of Theoretical and Applied Mechanics, for one year and the summer session, to engage in research on the mechanisms of cyclic plastic deformation and the initiation of structural damage in metals, and also to participate in frequent seminars on deformation and fracture of metals.

Ledyard R. Tucker, Professor of Psychology and of Educational Psychology, for the second semester, to prepare a monograph on "Fundamental Theory of Linear Multivariate Models in Psychology" and to research techniques for investigation of individual differences in psychological phenomena.

B. Faculty Summer Fellowships

This program, initiated by the University Research Board in 1958, continues to be very attractive to younger members of the faculty. It provides a modest, tax-exempt stipend which permits the recipient to devote full time to scholarly endeavors during the summer months. During 1965-66, 124 applications were received, 32 from the Chicago Circle campus and 92 from the Urbana campus. A total of 70 awards were offered for the summer of 1966. Table 5 reports the distribution of awards by departments since 1961.

Although the University Research Board has substantially increased its support of this program over recent years, the number of meritorious proposals still exceeds the number of available awards. The existence of the program increases the attractiveness of Illinois as a university where younger faculty members are encouraged in creative scholarship and productive research. Additional funds are needed for its further expansion.

Faculty Summer Fellowship Committee:
1965-66

N. A. Graebner, Chairman

S. J. Fenves

J. T. Flanagan

F. J. Nock

A. V. Sapora

Mark Sprague

C. University Research Board

1. Internal Appropriations Made. The continuing growth of graduate work and expansion of research at the University through the year just ended are reflected in the appropriations of the University Research Board. Table 9 presents a summary of the Board's appropriations, listed in seven principal categories. In the first category, allocations for general University purposes, the largest sums have been those for the faculty fellowship program and the subvention funds associated with the graduate student fellowship program. The still larger requirement for graduate student fellowships (approximately $225,000) was deferred beyond the end of the year and will appear in the next Annual Report. The next largest item in this first category is the allocation to the Library, which provided for large acquisitions of Asian and Slavic materials as well as manuscripts and collections, such as the Sir John Richardson collection, needed for research in various other fields. Direct appropriations to the Department of Computer Science ($75,000) were substantially lower during the year just ended than in any recent year (1964-65 appropriations, for example, were $150,000). However, additional funds approximating $137,000, appropriated to individual departments for payment of charges by the Department of Computer Science for services to research projects withinthe departments, are included in the appropriations to departments (sections II-VI of Table 9).

The next five categories in Table 9 include the total of the appropriations made in response to requests from individual faculty members for research funds. The total number of such requests submitted to the Board was 273, as compared to 247 during the preceding year, and the total amount appropriated rose to $950,725, nearly 30% more than last year's total of $749,757. As mentioned above, the 1965-1966 total includes approximately $137,000 to be used for payment of computer charges which in earlier years were not billed through the departments. Although this change in procedure complicates detailed comparison between appropriations last year and this, it is obvious that the support of faculty research in the humanities and arts continues to increase (from $112,662 to $145,035), as does that in the social sciences (from $201,484 to $225,776). In these two general areas, more than half of the support is in the form of stipends for research assistants (entered in the dollar column at $4,500 per FTE). Together they employed the equivalent of some 44 FTE assistants, as compared to 6.5 in all other areas combined. Support for the biological sciences fell from $165,310 to $134,954. Appropriations to the physical sciences increased from $257,573 to $423,403, but the actual increase in research support was substantially less than indicated by comparison of these two figures, for the latter one includes more than half of the funds appropriated for computer charges.

The entire appropriation to the Chicago Circle campus (category VI) was made to the new Committee on Research at Chicago Circle for allocation among the most urgent of the many research needs on that campus. Although the sum made available is by far the largest appropriation ever made by the Board for Chicago Circle (the preceding year's figure was $14,983) or its predecessor, the Chicago Undergraduate Division, the resources of the University Research Board are obviously inadequate to meet the costs of initiating research programs on the large scale required at a new campus planning to offer advanced degrees in numerous fields. It is hoped that appropriate research funds soon will be made available to the Chicago Circle campus and that the Research Board's support there will prove to be of interim character. When the Chicago Circle appropriation is added to the appropriations in categories II-VI, the total is $1,050,725, or some 30% more than the figure of $764,740 of the preceding year.

Some of the increased needs met by the Board result from the completion of new facilities on the Champaign-Urbana campus, making possible needed additions to the staff. This development seems certain to continue during the next several years. Another source of future pressure on the resources of the Board will be the cost of the next major developments in the Department of Computer Science. The costs associated with the next generation of computers will be so great that to maintain the University's present position of leadership in this key area will require large additional sums.

Of the total of $1,396,305 appropriated by the Board during the period under consideration, $1,263,265 came from the Board's own resources and $133,040 was provided from certain institutional grants accruing to the Graduate College.

Serving on the University Research Board in 1965-66 are:

Daniel Alpert, Chairman
H. G. Drickamer
H. W. Hake
D. E. Mapother
(appointed March 1966)
R. K. Mautz
A. V. Nalbandov

N. M. Newmark
M. V. Novak
Sherman Paul
C. P. Slichter
(resigned March 1966)
H. R. Snyder, Secretary
Sol Spiegelman

2. Review of Applications for Research Grants and Contracts and of Gifts for Research. Most of the funds required for the pursuit of research at the University are provided by external agencies, principally those of the federal government, in response to research proposals by individuals or groups of individuals within the faculty. Other proposals to federal agencies and other external organizations request grants for equipment, for instruction (particularly for summer institutes, academic-year institutes and special programs), for fellowship and trainee programs, for building and remodeling, and for other purposes. The resulting grants and contracts provide not only for the costs of equipment, materials, and personnel, but also for the construction of research space. Many University buildings have been or are being constructed with funds provided jointly by the state and federal governments. Table 10 shows the number of proposals submitted from the various University areas during the period July 1, 1965, through June 30, 1966. The total number of such requests was 1,007, and the total sum requested was $74,151,192 (the corresponding figures a year ago were 988 and $70,280,033). As of June 30, 547 (about 55 per cent) of these proposals had been acted upon, 84 of them being denied and 463 being approved wholly or in part. Those approved will result in funds of $24,298,240, which will be paid to the University over several years. The remaining 460 proposals are still under consideration by the agencies receiving them. It is particularly to be noted that the support of creative work, research, and special instruction in the arts, humanities, social sciences, and education is increasing substantially. The total of the

awards in these areas shown in Table 10 is \$7,100,484 as compared to a total of \$3,993,744 in the corresponding tabulation of last year's Annual Report. It is to be hoped that this trend will continue until scholars in the various fields enjoy essentially equal opportunity of obtaining support for their creative work.

The awards made up to June 30, 1966, in response to proposals originating since July 1, 1965 (Table 10), are almost 75 per cent greater than for the corresponding period, one year earlier. The increase is particularly apparent in the applied physical sciences; nevertheless the total of awards in the remaining nine areas of the table, made in response to proposals submitted since July 1, 1965, is some 20 per cent higher than the corresponding figure one year earlier.

Table 11 summarizes the actions taken on the 988 proposals that were submitted during the year July 1, 1964 - June 30, 1965. Over 95 per cent of these proposals have been acted upon. Nearly 75 per cent of the proposals submitted received favorable action, and total awards were \$31,317,906. This was the largest total for a twelve-month period, about 10 per cent over the total for the preceding year (ending June 30, 1964, \$28,705,743).

D. University Patent Committee

The Patent Subcommittee of the University Research Board received during the past year from University staff members twenty-three disclosures of potentially patentable inventions. Most of these inventions were submitted to the University of Illinois Foundation for further study.

The Patent Committee recommended the following action with reference to the rights of the University on inventions reviewed this year:

Thirteen -- released to the University of Illinois Foundation for further study and possible patent application;

Ten -- released to the inventors;

One -- released to an agency outside the University;

Two -- closed because, in the opinion of the Patent Committee, the University had no rights in the invention;

Eleven -- are under study at the present time by the University of Illinois Foundation, which will report back to the Committee at a later date; and

One -- had distribution of income determined.

Members of the University Patent Committee for 1965-66 were:

R. J. Maurer, Chairman
J. C. Colvin
J. J. Costello
R. T. Milner
J. R. Pasta
H. R. Snyder
C. C. DeLong, Secretary

CARLE CLINIC
URBANA, ILLINOIS 61801

AREA CODE 217
TELEPHONE 337-3311

INTERNAL MEDICINE
DR CHAS H DRENCKHAHN
DR. B SMITH HOPKINS, JR.
DR. ROBERT M. HOYNE
DR. NORRIS L BROOKENS
DR. JOHN H. HOUSEWORTH
DR. EDWARD PARKER HAYS
DR. LANE S. DICKINSON
DR. E RICHARD ENSRUD
DR. HARLAN J. FAILOR
DR. JOHN W. POLLARD
DR JACK K. CHAMBERLAIN
DR. ALAN A. PETERSON
DR. ROBERT SOSTHEIM
DR. DAVID W. MORSE
DR. EUGENE GREENBERG

GENERAL SURGERY
DR J. C. THOS. ROGERS
DR. FRANK H. RUSS

COLON AND RECTAL SURGERY
DR. G. BRUCE THOW

CARDIOVASCULAR AND THORACIC SURGERY
DR. JACK C. COOLEY

RECONSTRUCTIVE AND PLASTIC SURGERY
DR. WILLIAM S. JOHNSON

ORTHOPEDIC SURGERY
DR. ROBERT D. MUSSEY
DR. ALAIN F. MENGUY

UROLOGY
DR. ROBERT B. ROWE
DR. HENRY E. WOLFE, JR.
DR. WILLIAM J. TOLAND

OBSTETRICS-GYNECOLOGY
DR. THOMAS R. WILSON
DR. STANLEY E. SMITH, JR.
DR. JOSEPH A. STEPHENS
DR. MERRILL W. HUFFMAN
DR. J. ROGER POWELL

ORAL SURGERY
DR. EDWARD C. THOMPSON
DR. ROBERT R. KEEN

OPHTHALMOLOGY
DR. G. LEROY PORTER
DR. BENJAMIN E. ROBINSON

OTOLARYNGOLOGY
DR. JAMES S. WALKER
DR. HARRY E. LORE

PEDIATRICS
DR. RICHARD E. DUKES
DR. JAMES B. CORBETT
DR. WARREN E. GREENWOLD
DR. LEO G. PERUCCA
DR. BENJAMIN H. ROBBINS, JR.
DR. KATHLEEN BUETOW

DERMATOLOGY
DR. J. WILLIAM DIDCOCT
DR. ROBERT L. WOLF

NEUROLOGY
DR. HARRY M. BUTLER, JR.

RADIOLOGY
DR. GEORGE A. MILLER
DR. HOWARD C. NEUCKS
DR. RICHARD P. TAYLOR

ANESTHESIOLOGY
DR. CLARENCE H. WALTON
DR. R. MERLE STAUFFER

PATHOLOGY
DR. HERBERT P. FRIEDMAN
DR. EDWARD P. GROGG

EMERGENCY ROOM
DR. GUY B. MAYNARD, JR.

RESEARCH CONSULTANT
FREDERICK R. STEGGERDA, Ph. D.

ADMINISTRATION
RUSSELL H. DUNCAN
VERNON G. TOCK
CHARLES L. DAWLEY

CREDIT
J. HARRY LANG

IN FURTHER CORRESPONDENCE REFER TO
CLINIC NO. 19 04 29

October 1, 1969

Mrs. Lily Gara
506 West California
Urbana, Illinois 61801

Dear Mrs. Gara:

I would like for you to come in soon for a recheck examination. To assist you I have scheduled the following appointment for you.

Friday, October 10 at 2:50 p.m. with Dr. Thow

If this is not convenient, our Main Appointment Desk (Telephone 337-3200) will be glad to make more suitable arrangements for you.

I am looking forward to seeing you on the indicated date unless I hear from you to the contrary.

Sincerely yours,

G. Bruce Thow, M.D.

cjm

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E. Institutional Grants

The National Science Foundation Institutional Grant of $138,952 made to the University was assigned to the Center for Advanced Study for use in supporting the appointments of associate members and members, as well as those of research assistants and associates working with the members.

The University also received the sum of $2,500 per fellow in conjunction with the National Defense Education Act Fellowships; certain Office of Education Fellowships; United States Public Health Service Fellowships; and National Science Foundation Faculty Fellowships, Cooperative Fellowships, National Fellowships, and Traineeships. Parts of these grants have been assigned to the Graduate College for allocation directly to departments, for partial support of the fellowship subvention program, and for other purposes within the restrictions imposed by the various grants. The relatively large increase (approximately $200,000) in accruals during the year has permitted carrying over a balance (also approximately $200,000) for use during the year 1966-1967. A summary of the receipts and allocations of institutional grant funds appears in Table 12.

F. Associated Research and Service Enterprises

1. Department of Computer Science. The Department of Computer Science has again expanded its activities as well as its facilities. Construction of the second addition to the Digital Computer Laboratory of the Department of Computer Science began in July, 1965. Occupancy is anticipated in the fall of 1966.

Enrollment in courses taught by members of the departmental staff remained very high; there were 1,080 students enrolled in Mathematics 195. During the year, 68 graduate assistants were employed.

Curriculum in Computer Science. Pending approval by the Illinois State Board of Higher Education, a curriculum has been evolved and a brochure prepared giving information about the Graduate Program in Computer Science. There is opportunity for research in a wide variety of areas including: (1) Digital Computer Arithmetic, (2) Switching and Automata Theory, (3) Circuit Design, (4) Hardware Systems Design, (5) Computer Organization, (6) Computer Application in Physics, (7) Software Systems and Languages, (8) Numerical Analysis, (9) Pattern Recognition, (10) Information Retrieval.

ILLIAC II Computer System. The ILLIAC II system has continued to supplement the user facilities offered by the laboratory. The user library has been expanded to meet the growing needs, particularly by the provision of the CalComp digital plotter and associated program services.

Computer System Research. A general purpose experimental time-sharing system has been in operation for the latter half of this year utilizing the four ILLIAC on-line consoles. It has been used for the experimental development of an expanded system to go into operation in the summer or fall, and for the development of problem oriented languages for general use.

ILLIAC III. ILLIAC III, also known as the Illinois Pattern Recognition Computer, is being built to test the parallel design concept for automatic recognition of similar patterns in a series of pictures or images which normally would require the close scrutiny of human eyes. The computer will be able to perform up to 1,024 logical operations at once. It is expected to be the first of a new generation of computers which depart from today's "one step at a time" concept of computer design.

The advanced design of ILLIAC III has also attracted the interest of the Advanced Research Projects Agency (ARPA) of the Department of Defense. ARPA is adding a 65,536 word core memory, a disk back-up store, and a closed circuit television communication system to this prototype computer system. These additions will permit users with only occasional data-processing demands to have access to the central pattern recognition computer from several remote consoles located around the Illinois Campus, or beyond.

ILLIAC IV. ILLIAC IV is a multi-special-purpose computer currently being designed in the Department of Computer Science. Three contracts have been awarded for assistance during the current design phase. The companies that received awards are Burroughs, RCA, and Univac. In addition, Texas Instruments is performing a design study on their own funds.

Circuit Research. The main efforts of the Circuit Research Group were in the area of DC coupled hybrid circuits with minimal temperature drifts. A set of compatible circuits was designed for signal swings of ±10V having less than 10 millivolts thermal variation from 20°C to 40°C and less than 0.3 per cent nonlinearity and frequency error from DC to two megacycles. Using these circuits, a hybrid-digital-analog system was built (PARAMATRIX System).

A second area of work was the study of uncommon forms of information signals. The fundamental idea of transmitting analog signals as the average frequency of random pulse sequences was relatively easy to implement. In particular, it was proved possible to transfer voice signals on such random sequences. Another interesting development was the design of a computing element which adds, subtracts, multiplies, and divides using the coincidence properties of random pulse sequences.

Hardware Systems Research. The main project was the actual building of the PARAMATRIX System. This system is essentially a digitizer for a 32x32 matrix which repositions, magnifies, and rotates a pattern electrically.

A second project was the building of the ARTRIX System. Investigations for this project led to the development of a storage cell for two-tone graphical information containing a memotron-vidicon pair. The system automatically will be able to construct line segments through given points, circles with given centers, and given radii, etc.

Research under NSF Grants. During the year research was done in the areas of computer arithmetic, autonomous arithmetical structure, algebraic manipulations by a computer, compiler theory, number theory, and numerical analysis.

IBM 7094-1401 System. Increasingly heavy use is being made of the IBM 7094-1401 system, with approximately 196,000 individual runs being made in the period from July 1, 1964 to June 30, 1965. Of the total operational time (approximately 5,694 hours), about six per cent (approximately 320 hours) was used for class problems (which accounted for nearly one-fourth of the number of individual runs), nineteen per cent (approximately 1,070 hours) was used for theses research, sixty-four per cent (approximately 3,640 hours) was used for non-theses research by staff members for various departments of the University. Administrative and developmental use of the computer by the Department of Computer Science and other units of the University accounted for eleven per cent (approximately 656 hours). Approximately 8 hours were used for special short runs by staff and students.

The above figures show an increase of approximately 15 per cent in the number of computer runs made, and a decrease of about 4 per cent in the total operational time. This reflects the work done to increase the efficiency of operation of the computer system, PORTHOS.

2. Committee on Natural Areas. This committee has supervised the maintenance and utilization, as in past years, of the University-owned Trelease Woods, Trelease Grassland Tract, Brownfield Woods, a research area in Allerton Park, Volo and Wauconda Bogs, certain waylands along the railroad east of Urbana, and the recently acquired Nettie Hart Memorial Woods. These areas are used extensively in both teaching and research in the departments of Agronomy, Botany, Urban Planning, Landscape Architecture, Entomology, Forestry, Recreation and Municipal Park Administration, and Zoology. Nearly one thousand students in more than 25 courses visit these areas each year.

Negotiations were completed on the purchase of the 36-acre Nettie Hart Memorial Woods this past year. A fence has been installed along the road for maintenance and security purposes. A topographic map and complete census of woody plants have been prepared and a soils map will be finished this summer.

Soils and topographic maps have been prepared for Trelease Woods and an extensively instrumented microenvironmental station for long term studies has been established in Trelease Grassland.

The committee agreed to a plan proposed by the City of Wauconda whereby the City can divert a limited amount of surface runoff into the bog. It is believed that this amount of water will not upset this natural ecosystem.

The committee has gone on record in strong opposition to the raising of the proposed Oakley Dam conservation pool level from 621 to 636 feet.

This would destroy approximately 600 acres of bottomland and slope deciduous forest, forest that cannot be replaced anywhere in the state for teaching and research.

The membership of the Committee is:

S. C. Kendeigh, Chairman
L. C. Bliss
W. R. Boggess
W. R. Horsfall
J. A. Jackobs
G. N. Jones
R. T. Odell
H. H. Shoemaker
G. P. Waldbauer

3. Physical Environment Unit. Student demands on the unit facilities have increased over previous years. Ten graduate thesis research projects have been conducted in whole or in part, with these students representing departments of Physiology and Biophysics, Physical Education for Men, and Physical Education for Women. An original research project was performed by students in Physiology-Geography 462 (Experimental Bioclimatology). A paper to be read before the American Physiological Society in September will report the results of this student research. Demonstrations and laboratory exercises for Mechanical Engineering 421 and Physiology 404 were also part of the contributions of Physical Environment Unit staff and facilities to graduate teaching.

Immersion facilities were completed last fall; a human subject weighing system has been purchased which makes possible determination of weight change within a few grams. This installation has been used by Physical Environment Unit staff in cooperation with members of the Human Environmental Unit to study the physiological responses of men and women at rest in warm water. The findings of this study will be reported before the American Physiological Society.

Plans have been initiated to develop a course sequence in ergonomics, with major involvement of Physical Environment Unit facilities and staff. Two 300-level courses - Principles of Ergonomics, and Experimental Techniques in Ergonomics - and a graduate level seminar are contemplated. The course sequence will provide a minor in ergonomics for students concerned with interdisciplinary aspects of man and his working environment.

Members of the Executive Committee of the Unit for 1965-66 were:

F. Sargent II, Chairman
D. Dulany
R. S. Engelbrecht
B. A. Hertig, ex officio
H. H. Korst
A. L. Nalbandov

4. Radiation Hazards. The use of radiation sources and radioactive materials continued at a high level for the year 1965-66. Orders for radioisotopes totaled over 25,000 millicuries in 578 orders distributed among 14 departments. Of these, 42 orders totaling over 600 millicuries in 335 samples were produced in the nuclear reactor. Three major irradiation facilities have commenced operations this year: A 225 Curie Cobalt - 60 Irradiator at the Veterinary Research Farm, a neutron generator at the Nuclear Engineering Laboratory, and a Van de Graaff electron accelerator at the Materials Research Laboratory. Radiation levels at the Cyclotron, Betatron and Reactor Laboratories have not changed significantly.

The number of rooms on the active radiation survey list presently ranges from 170 to 180. The number of film badges used to monitor personal radiation exposures stands at about 310. No individual's reported radiation exposure exceeded the Radiation Protection Guides of 5,000 millirem per year or 1,250 millirem per quarter. No serious spills or incidents occurred this year.

Blood tests were scheduled at the University Health Service for some 270 persons. Eye examinations were scheduled at Carle Hospital Clinic for 65 persons. No abnormalities attributable to radiation were found.

The Radiation Hazards Committee has always emphasized preventive safety in its programs, and the University has been fortunate that to date there have been no accidents simultaneously involving serious injury and radioactive contamination of personnel. However, past good fortune is no guarantee of future immunity from unforeseen exigencies. To this end, the committee has developed plans for an emergency treatment and decontamination facility at McKinley Hospital. Funds for this facility have been approved, and the necessary remodeling can begin as soon as the contracts are let.

The Health Physics Staff is the same as last year, two full-time Health Physicists and one full-time technician.

Members of the Radiation Hazards Committee for 1965-66 were:

A. O. Hanson, Chairman
J. S. Allen
M. K. Brussel
J. Doak
L. E. Elliott
J. P. Hummel
R. F. Nystrom
J. J. Steerman
O. S. Walters

5. Radiocarbon Laboratory. Facilities of the Radiocarbon Laboratory have been used for research projects by twenty-two persons from eight University departments or divisions. In addition, major research projects of the Laboratory staff during the year have included: (1) extension of the structural studies on Aerobacter aerogenes capsular polysaccharides including a number of new type-specific polysaccharides; (2) development of several isotope dilution procedures applicable to the quantitative aspects of the structural work described above; (3) initiation of studies

on the biosynthesis of microbial polysaccharides by cell-free systems; (4) preliminary investigations of the metal-catalyzed exchange reactions between organoboranes and tritium gas; (5) development of optimum isomerization conditions for converting organoboranes-2-T to organoboranes uniformly labeled with tritium; and (6) study of the displacement reaction of organoboranes using compounds labeled with tritium in specific positions. One outside grant has helped to support the research; in addition, one grant-in-aid totaling $2,400 has been received from Abbott Laboratories. The staff of the Laboratory also has served in advisory capacities on carbon-14 and tritium problems and techniques for University faculty and students and for visitors from laboratories in the United States and foreign countries.

6. Illinois Historical Survey. Change was the "order of the day" during 1965-66 so far as the Illinois Historical Survey was concerned. For fifty-six years, ever since its creation in 1910, the Survey had occupied space on the fourth floor of Lincoln Hall, but early this summer it was moved to newly remodeled quarters in Room 1A of the University Library. Its new location is a fortunate one for the Survey, not only because it makes possible the assembly of its books, manuscripts, and newspaper collection into a single work area, but also because it is now located adjacent to the University Archives and in the same general vicinity as the University's newspaper library. The usefulness of all three of these agencies will surely be facilitated by their proximity to one another in view of the interrelationships of their holdings.

During the past year the Survey has been able to make significant additions to its specialized book collection which includes a number of rare 18th and 19th century items as well as many 20th century volumes bearing upon the history of Illinois, the "old Northwest" Territory, and the Mississippi Valley. It has also acquired valuable additions to its manuscript holdings in the form of original papers, Xerox copies and microfilm of rare and valuable collections. The most significant is the acquisition of personal papers of Stephen A. Forbes, Civil War veteran, eminent citizen, staff member, and director for many years of the Illinois Natural History Survey, but mention should also be made of the Xerox copies of twenty-eight Philip D. Armour letters, and fourteen extremely rare letters of John Mason Peck, in addition to a microfilm of an account book-journal which he kept during the 1850's. Several sets of microfilm round out the 1965-66 acquisitions, and among these are two fine Civil War diaries of soldiers in the field.

In addition to its continuing function of providing research assistance to students and faculty on this campus, as well as to visiting scholars, the Illinois Historical Survey has been engaged in a number of cooperative enterprises during the past year. Through the Director, it has been involved in planning for the University Centennial on the part of the College of Liberal Arts and Sciences, the Graduate College, and the Department of Geography. It has been similarly engaged in preliminary activities concerned with the sesqui-centennial of Illinois statehood in 1968. Finally, it is co-sponsoring with the Department of Geology a research project supported by the Water Resources Center on this campus and the Office of Water Resources Research of the United States Department of the Interior.

7. Water Resources Center. The University of Illinois Water Resources Center has the responsibility for coordination of water resources related research, and serves as a focal point for interdisciplinary activities related to water resources. In addition, the Center is responsible for developing the water research program in the State of Illinois authorized by the Water Resources Research Act (Title I).

The first research projects funded with Water Resources Research Act (WRRA) funds were initiated in April 1965. During the past year the research program consisted of 9 projects continued from 1964-1965 and 10 new projects. These research projects were conducted by staff members in 11 academic departments, 2 scientific surveys, and 1 other university in Illinois. Also, funds have been received by the Center for the fiscal year 1967 research program including 13 continued projects and 4 new projects.

During the past year, efforts have been continued to establish cooperative relations with other university research groups in Illinois. Center staff members have visited other universities to discuss water research and the implementation of the Water Resources Research Act in Illinois. These efforts included separate conferences with representatives of Eastern Illinois University, Illinois State University, Western Illinois University, Southern Illinois University, Illinois Institute of Technology, and Northwestern University.

In October 1965, the State-wide Advisory Committee met to discuss water research needs in Illinois and the Center's program. Attendees included representatives from eight Illinois universities, seven State agencies, and three Federal agencies. The meeting was instrumental in developing information on research areas believed to be of importance in Illinois at the present time.

The Center has established a file of current water resources research. The active file includes information on 132 research projects in progress in the academic departments and associated scientific surveys.

Members of the Executive Committee are:

G. W. White, Chairman
W. C. Ackermann
J. C. Frye
R. J. Martin
J. P. Murtha, Director of Center
M. B. Russell

8. Survey Research Laboratory. The demand for the services of the Survey Research Laboratory in its first full year of regular operations appears to have fully come up to original expectations. The number of projects submitted and the requests for service have been such that the number of people working for the Laboratory has risen from about 10 at the end of last year to roughly 60. In addition, SRL maintains a part-time staff of approximately 200 interviewers in different parts of the State.

Nine studies have been undertaken of widely varying scope and subject matter. In all instances, the work involved sample design, questionnaire preparation, data collection, and data processing. In some cases additional work was involved, primarily study design. Staff members have given advice to numerous faculty members and graduate students on the design and conduct of survey operations. In addition, various members of the staff have given guest lectures on survey methods to classes of advanced undergraduates and graduates in different departments of the University. We also have inaugurated the first of a series of internal training programs for those employed by the Laboratory.

Plans are underway for the preparation of course outlines on survey methodology at Urbana and Chicago Circle. To some extent, these courses will consolidate existing courses and provide an integrated program of study in survey methods which is not now currently available. It is hoped that the first of these courses will be prepared in time for the 1967-68 academic year.

The Data Repository has continued to add studies to its holdings. A brief description of the Repository, its holdings, and the services it offers has been written and soon will be distributed to University officials and other interested persons. The Repository is affiliated with the Roper Public Opinion Research Center (Williamstown, Mass.) and has on file the large index to domestic surveys compiled by the Center. A question retrieval system is being developed by the Repository staff. As the first step, a pilot study is in progress to establish procedures, codes, and code categories for encoding survey questions.

The Executive Committee of the Survey Research Laboratory as well as the Graduate College have been most cooperative in assisting us in the initial year and in providing guidance and advice in policy matters as they have arisen. Members of this committee for the past academic year were as follows:

George K. Brinegar, Chairman
(since February 1)
William I. Goodman, Chairman
(to February 1)
Thomas Duggan
Robert Ferber
Martin Fishbein
Glenn W. Fisher
Robert Hall
Mathew Hauck
Mark H. Lepper
Adolf Sturmthal
Denis Sullivan

9. Center for International Comparative Studies. During 1965-66, the *ad hoc* Executive Committee met on four occasions. The Committee decided (a) to provide faculty with per diem living expenses for "short term" overseas research projects (at an average of $10 per day), (b) to permit discretion to the Executive Secretary of the Committee to reallocate items within an approved project budget of up to $500 for research expenses, and (c) to accept a recommendation from Provost Lanier and Dean Alpert to administer the Teheran Research Unit with Professor Howard Maclay as campus coordinator. Otherwise, the Committee's guides for judging acceptable projects and for allocating financial support did not change.

During the year the Committee considered 20 proposals newly submitted by individual faculty members or faculty groups. Of these, 13 were approved for financial support. One project pending from the previous year was also approved. The total allocated for all these proposals was $39,281.00.

The Committee allocated $1,000 to continue support for a second year of the Interdisciplinary Seminar on Economic Development and Comparative Research.

Final action was deferred on three additional proposals, while the Committee declined to support four others.

At its meeting of April 26, 1966, the Committee had an opportunity to review with Dean Alpert the status of the search for a director of the Center. It was the conclusion of the Committee that the concept of the Center as originally formulated should not be changed, but that increased efforts appear necessary in order to identify and scrutinize suitable prospects for the position.

Members of the ad hoc Executive Committee for 1965-66 were:

S. B. Levine, Acting Chairman
G. K. Brinegar
J. B. Casagrande
Royden Dangerfield
J. F. Due
R. T. Fisher, Jr.
H. R. Snyder
J. H. Steward
Adolph Sturmthal
John Thompson

10. Center for Human Ecology. During the past year, the University Council on Human Ecology adopted a set of operational procedures and established three research committees. A general policy adopted by the Council is that programs of graduate training or research developed by groups within the Council shall be administered and directed by those groups. These separate projects constitute the beginnings of the Center's program.

Ecosystems Analysis. One program, the CIC Biometerology Graduate, is supported by a training grant from the Division of Air Pollution, U. S. Public Health Service. An application for a five-year renewal has been approved for support by the National Environmental Health Sciences Committee. An application for a research grant entitled "Geographical Problems of Zoonoses in Southern Illinois" was submitted to the Office of Resource Development, U. S. Public Health Service.

Biological Populations. A five-year grant for a training program in biopsychology has been received from National Institutes of Mental Health and a grant from the National Science Foundation is supporting a study of comparative reactions of men and women to hot atmospheres. A proposal has been submitted to NASA to support studies on physiological individuality.

Social Regulations. At the specific invitation of the Director, State Department of Mental Health, the Council voted to explore the feasibility of developing a program of training and research in community mental health. This interaction has been initiated with state funds to support a study of the ecology of movement as a factor in mental health therapy.

Members of the Executive Committee appointed in January, 1966 were:

F. Sargent, II, Director and Chairman
D. B. Shimkin
N. D. Levine
K. E. Harshbarger
J. D. Fellman

G. Support of Scholarly Publications

1. Publications by the University Press. The University of Illinois Press is the central agency responsible for coordinating and producing all University publications. One of its important functions has been to provide for book publication of worthwhile studies by scholars and research workers on the campus and elsewhere. It has been especially concerned with gaining a hearing for authors whose works have importance and quality but which lack the market appeal required for commercial publication.

Since it was established in 1918, the University Press has published 850 scholarly and scientific books. It has earned a world-wide reputation not only for its distinguished lists but also for its excellent graphic design. Besides an output of forty books each year, it issues quarterly journals in law, mathematics, library science, language, and literature. A new series of paperback books, Illini Books, begun three years ago, now contains forty titles. Publications of the University Press for the preceding year are listed in Table 13 in the appendix.

Members of the University Press Board during 1965-66 include:

T. Peterson, Chairman
Daniel Alpert, ex officio
R. W. Johannsen
M. Muntyan, Secretary, ex officio
R. W. Rogers
J. R. Shipley
P. E. Yankwich

Committee members for the University Studies series were:

Biological Monographs:
J. G. Sternburg, Chairman
B. C. Abbott
R. S. Bader
H. M. Smith
D. M. Steffensen
R. S. Wolfe

Monographs in Anthropology:
J. B. Casagrande, Chairman
J. R. Gusfield
J. A. Russell

Monographs in Medical Sciences:	S. R. M. Reynolds, Chairman Hubert Catchpole Milton Engel E. R. Kirch J. P. Marbarger
Studies in Language and Literature:	B. A. Milligan, Chairman J. R. Frey Philip Kolb J. J. Bateman
Studies in the Social Sciences:	R. W. Harbeson, Chairman M. H. Fisch R. W. Johannsen R. E. Scott

2. *Annual List of Publications of the Faculty*. The 1965 listing of scholarly and professional publications by faculty and administration again was substantially increased in length over other years. Over 2,200 faculty members from the Urbana and Chicago campuses were represented with one or more titles.

3. *The Illinois Journal of Mathematics and the Journal of English and Germanic Philology*. These journals are published quarterly under the auspices of the Graduate College. Since June of 1965, the *Illinois Journal of Mathematics* has received 82 papers from eight countries including the United States, as compared with 88 papers the preceding year. Of the papers received, the Journal published 71, totaling 745 pages. The circulation increased by 5 per cent over the preceding year.

The four issues of the most recently completed volume of the *Journal of English and Germanic Philology* for 1965 contained a total of 786 pages comprising 35 articles and 153 book reviews. The Board of Editors are currently accepting about 12 per cent of the manuscripts submitted to them.

Serving on the editorial board of the Illinois Journal of Mathematics during 1965-66:

R. G. Bartle, Chairman
D. G. Bourgin
A. P. Calderon
S. S. Chern
P. Hilton
H. Samelson
M. Suzuki

Serving on the editorial board for the *Journal of English and Germanic Philology* for 1965-66:

J. Stillinger, Chairman
A. E. Barker
G. B. Evans
R. L. Haig
P. M. Mitchell
E. A. Philippson
R. W. Rogers
G. B. Stillwell

IV. CHICAGO MEDICAL CENTER DIVISION OF THE GRADUATE COLLEGE

(Report prepared by Milan Novak, Associate Dean)

A. Introduction

Responsibility for graduate training in the health sciences rests primarily with health-oriented campuses such as the University of Illinois at the Medical Center. The staffing of colleges of medicine, dentistry, pharmacy, and nursing with academic personnel is largely dependent upon the quality and quantity of trainees emerging from degree programs in these centers. The unmet needs in the United States are striking in view of the statistical evidence showing that fully budgeted vacant positions exist as follows:

Professional Schools of Nursing ---	1,243
Practical Nursing Schools ---------	125
In 88 Colleges of Medicine --------	915
In 72 Colleges of Pharmacy --------	115
In 48 Colleges of Dentistry -------	112

These vacancies represent about 6 per cent of the total available positions in these areas. While the deficit is impressive, it is especially so in nursing since 70 per cent of those in active teaching positions lack a master's degree and substantial numbers do not have a bachelor's degree. The efforts at this medical center are and have been focused on this problem.

B. Administration - Enrollment, Faculty, Degrees Awarded

Enrollment increased to an all-time high of 305 representing an increase of 23 students over the previous year. There appears to be a leveling off in enrollment in the established disciplines within the Colleges of Medicine and Pharmacy, the notable increases occurring in the developing areas in Dentistry and Nursing. The number of registered students is largely dependent on available student stipends, primarily those derived from National Institutes of Health training grants. A total of 31 training grants involving $1,623,588 included $801,985 for student stipends. Approximately one-half of the students enrolled are supported from this source. Forty-four per cent of the students enrolled had academic backgrounds in a professional area at the time of initial registration; the rest had Bachelor of Science degrees with majors in either a biological science or chemistry.

Twenty-five members of the faculty were appointed to the Graduate Faculty; of these 6 were given full standing. The total Graduate Faculty now numbers 199. In addition some of the members of the Graduate Faculty at Chicago Circle have served, with the approval of their respective department heads, on committees conducting preliminary and final examinations for the Ph.D. degree. For information concerning degrees conferred, see Table 14 in the appendix.

C. Courses and Curricula

Fourteen new courses were added and several others were revised. With the activation of Chicago Circle, increasing use of course offerings is being made, notably in foreign languages. The proximity of that campus to the Medical Center is greatly valued. Reciprocity and cooperation with Northwestern University and the University of Chicago continue under the Committee on Institutional Cooperation.

The Executive Committee members were:

Milan Novak, Chairman
Martin Blake, Pharmacy
Ralph Daniels, Pharmacy Chemistry
Henry Jeffay, Biological Chemistry
Arthur LaVelle, Anatomy
Mary Lohr, Nursing
Akira Omachi, Physiology
Robert Pumper, Microbiology
James Yaeger, Dental Histology

D. Promotion of Research

A total of $220,273 was allocated to 14 departments in support of research projects and for the purchase of essential research equipment. A substantial amount of the total ($41,390) was approved for expansion of computer facilities.

Members of the Research Board at the Medical Center were:

Verda James
Henry Jeffay
Ernst Kirch
John Margarger
Milan Novak, Chairman

V. CHICAGO CIRCLE DIVISION OF THE GRADUATE COLLEGE

(Report Prepared by R. C. Retherford, Associate Dean)

A. Introduction

Throughout most of the past year the principal responsibility of the Graduate College at Chicago Circle has been to provide guidance to departments in the development of programs for the master's degree, to carry out the initial review of these programs, and to participate in later stages of the review by the Graduate College. Twelve such programs have been approved by the Executive Committee of the Graduate College and by the Chicago Circle Senate. For details, see Table 18.

The second responsibility of the Graduate College at Chicago Circle has been to allocate funds to faculty members for research. Details are given in Table 19.

During the past year, six graduate students were engaged in joint programs. Of these, three were registered at Urbana, and three were registered at the Medical Center. Recent procedural changes will make it possible for graduate students pursuing joint programs to register as irregular students at Chicago Circle. To be eligible for a Joint Program, the student must hold an assistantship, his program of study must be approved by the initiating department at Chicago Circle and the cooperating department at Urbana or the Medical Center, and his major department must have submitted a master's program that has been approved by the Executive Committee of the Graduate College.

A start has been made to secure fellowship aid for graduate students, but this activity has been hampered by regulations of Federal agencies which stipulate that graduate programs be approved before grants can be considered.

During the past year, the Graduate Faculty at Chicago Circle has increased to 68 with full standing and 84 with master's standing.

B. Committee on Graduate Studies

In December of 1965, Dean Alpert appointed Thomas Brown, Philip Dwinger, Isadore Farber, George Hendrick, William Rostoker, William Tait, and Curtis Retherford, Chairman, ex officio, to the Committee on Graduate Studies. The charge to the Committee was to: guide and assist departments in developing courses and program proposals; review such proposals after the department has secured the concurrence of the Dean of the College concerned; maintain close liaison with the Joint Advisory Committee; prepare recommendations on all matters directly relating to graduate education such as admission requirements, residence requirements, fellowships, assistantships, and housing.

The Committee reviewed all of the master's programs submitted and approved the following: Biological Sciences, Chemistry, Energy Engineering, English, Geology, German, History, Materials Engineering, Mathematics, Philosophy, Physics, and Psychology. These programs were later approved by the Joint Advisory Committee on Graduate Programs at Chicago Circle, the Executive Committee of the Graduate College, and by the UICC Senate. Other graduate programs are in preparation and still others will be submitted within the coming year.

C. Committee on Research

In December 1965, Dean Alpert appointed Robert Hall, Joseph Landin, David Levinson, Robert Remini, Andrew Schiller, William Otting, and Curtis Retherford, Chairman, to the Committee on Research, which serves a function similar to the University Research Board at Urbana.

The funds available to the Committee on Research were $137,534, of which $100,000 was transferred from the University Research Board at Urbana and the rest from indirect costs on contracts and grants at Chicago Circle. These funds were allocated for the purchase of research equipment and purchase of library materials such as documents, reproductions, and special book collections, wages for student assistants, and travel associated with research projects. A summary of the actions showing appropriations to the various departments is contained in Table 18.

With the expansion of the faculty, the number of proposals submitted to external agencies has increased from 30 proposals between September, 1964 and June, 1965 to 103 between July, 1965 and June, 1966. These were referred to 18 government agencies and 6 private foundations. Of the 133 submitted, 33 have been funded in whole or in part for a total amount of $933,709. The sources by areas, the amount requested, and the amount received are shown in Table 19.

The Committee on Research has been given the responsibility for distributing funds to the faculty for rental of computational facilities to carry on their research until comparable facilities are available on this campus. This is a temporary program which will anticipate the establishment of a Computation Center.

D. Joint Advisory Committee on Graduate Programs

The Joint Advisory Committee on Graduate Programs at Chicago Circle has continued its function of assisting in the orderly development of sound graduate programs at Chicago Circle. Since graduate programs in selected areas are planned to begin in September, 1967, the Committee's activities have been primarily concerned with providing advice to departments for the preparation of their graduate programs and making recommendations to the Dean of the Graduate College and the Associate Dean at UICC.

Four meetings of the full committee and a number of meetings of *ad hoc* subcommittees have been held at Chicago Circle and at Urbana.

Each of the twelve graduate programs listed above under Committee on Graduate Studies was evaluated by an *ad hoc* submittee consisting of faculty members from Chicago Circle, Urbana, and the Medical Center. As of June 30th, all of these programs had been approved by the Executive Committee of the Graduate College and by the UICC Senate.

The membership of the Committee was as follows:

D. Alpert, Chairman
S. B. Binkley
J. J. Campbell
L. L. Campbell
J. O. Corliss
M. Edelman
I. E. Farber
A. La Velle
R. E. Machol
R. B. Marcus
E. F. Masur
W. J. Otting, Executive Secretary
R. C. Retherford
R. M. Sutton
M. E. Van Valkenburg
P. E. Yankwich
J. Turner (to February)
L. Kent (from February)

APPENDIX

TABLE 1

ENROLLMENT BY DEPARTMENTS -- URBANA

1965-66 -- 1962-63

DEPARTMENT	1965-66	1964-65	1963-64	1962-63
AGRICULTURE				
Agricultural Economics	77	78	71	61
Agricultural Education	23	16	14	9
Agricultural Engineering	24	19	16	21
Agronomy	90	80	78	64
Animal Science	61	59	61	50
Animal Nutrition	a/	a/	1	4
Dairy Science	36	33	29	33
Food Science	62	53	49	48
Dairy Technology	9	10	5	8
Forestry	20	16	7	5
Home Economics	62	66	56	54
Home Economics Education	11	11	8	15
Horticulture	15	17	23	29
Plant Pathology	33	30	25	23
Subtotal	523	488	443	424
COMMERCE AND BUSINESS ADMINISTRATION				
Accountancy	121	90	84	76
Accounting Science	27	44	54	52
Business	34	32	40	43
Business Administration	162	121	115	81
Commercial Teaching	26	34	36	34
Economics	143	136	135	132
Finance	54	40	37	39
Management	14	15	13	16
Marketing	59	68	58	48
Subtotal	640	580	572	521
EDUCATION				
Education	2,113	1,942	1,788	1,673
Education of Deaf	1	1	1	0
Education of Mentally Handicapped Children	1	4	8	10
Subtotal	2,115	1,947	1,797	1,683

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1965-66	1964-65	1963-64	1962-63
ENGINEERING				
Aeronautical and Astronautical Engineering	56	56	38	33
Ceramic Engineering	26	30	29	19
Civil Engineering	344	330	371	306
Sanitary Engineering	17	19	24	24
Electrical Engineering	338	361	353	337
Mechanical Engineering	134	132	151	152
Metallurgical Engineering	78	68	53	52
Mining Engineering	13	11	13	10
Nuclear Engineering	69	61	56	49
Physics	384	343	334	287
Teaching of Physics	2	4	0	2
Theoretical and Applied Mechanics	92	76	86	96
Subtotal	1,553	1,491	1,508	1,367
FINE AND APPLIED ARTS				
Architecture	37	31	34	35
Architectural Engineering	21	27	30	18
Art	68	67	--	--
Art Education	34	25	26	19
Art History	b/	b/	17	10
Design	b/	b/	8	6
Painting and Printmaking	b/	b/	31	28
Landscape Architecture	22	16	12	3
Music	237	203	131	87
Musical Arts	c/	c/	54	53
Music Education	217	196	187	193
Musicology	c/	c/	14	16
Urban Planning	34	27	21	27
Subtotal	670	592	565	494
JOURNALISM AND COMMUNICATIONS				
Advertising	46	47	27	20
Journalism	33	30	29	24
Radio and Television	29	24	19	11
Television	3	3	2	6
Subtotal	111	104	77	61
LAW				
Law	21	18	15	8
Comparative Law	2	2	5	5
Subtotal	23	20	20	13

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b/ Included in figure for Art

c/ Included in figure for Music.

ENROLLMENT BY DEPARTMENTS (continued)

DEPARTMENT	1965-66	1964-65	1963-64	1962-63
LIBERAL ARTS AND SCIENCES				
Anthropology	69	59	47	40
Astronomy	18	15	14	13
Biology (formerly Biological Sciences)	44	33	39	24
Teaching of Biological Sciences and General Science	34	31	35	38
Botany	50	48	46	48
Chemistry	425	396	361	344
Chemical Engineering	55	55	51	51
Teaching of Chemistry	5	6	12	12
Classics	10	7	a/	a/
Classical Philology	5	6	7	7
Greek	2	4	7	3
Latin	1	1	10	7
Teaching of Latin	1	2	3	2
Comparative Literature	16	10	4	a/
English	369	332	308	287
Teaching of English	41	39	33	33
Entomology	49	42	42	41
French	114	99	84	85
Teaching of French	11	6	3	4
Geography	55	48	35	30
Teaching of Geography	6	3	4	2
Geology	75	81	82	83
German	60	46	45	36
Teaching of German	4	5	3	5
History	183	175	166	152
Linguistics	50	36	25	24
Mathematics	510	501	421	419
Statistics	11	10	19	15
Teaching of Mathematics	77	94	87	88
Teaching of Mathematics and Physical Sciences	a/	a/	1	a/
Microbiology	60	56	50	52
Philosophy	53	47	34	33
Physical Sciences	0	0	0	0
Teaching of Physical Sciences	4	2	4	6
Physiology	70	74	64	67
Political Science	123	111	95	70
Public Administration	2	2	4	3
Psychology	225	200	189	172
Russian	43	38	28	17
Teaching of Russian	2	2	0	0
Social Sciences	40	18	21	12
Teaching of Social Studies	63	46	32	40
Sociology	96	65	53	52

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a/ Program not offered.

ENROLLMENT BY DEPARTMENTS (Continued)

DEPARTMENT	1965-66	1964-65	1963-64	1962-63
Spanish	135	108	86	67
Italian	5	2	1	1
Portuguese	3	3	1	2
Teaching of Spanish	3	6	9	6
Speech	161	141	138	126
Speech Correction	15	19	18	20
Teaching of Speech	2	2	5	8
Zoology	112	92	99	84
Subtotal	3,550	3,222	2,925	2,731
PHYSICAL EDUCATION				
Dance	12	6	6	7
Health Education	18	17	12	15
Physical Education	158	174	161	143
Recreation	58	51	38	33
Subtotal	246	248	217	198
OTHER				
Biophysics	29	23	23	15
Chemical Physics	3	2	3	2
Communications	68	63	60	56
Extension Education	11	18	10	7
Genetics	4	4	a/	a/
Labor and Industrial Relations	66	69	56	45
Library Science	337	291	266	242
Social Work	74*	154	126	105
Veterinary Medical Science	60	66	54	47
Subtotal	652	690	598	519
UNCLASSIFIED	927	732	558	502
IN ABSENTIA	(455)e/	(385)e/	(362)e/	(221)d/
TOTAL	11,027	10,116	9,280	8,513

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a/ Program not offered.

d/ These students are included in the foregoing departmental figures.

e/ Doctoral candidates who have passed preliminary examinations and are registered for dissertation in absentia. These are included in the foregoing figures.

* Excludes 117 Social Work students who registered at the Chicago Circle Campus.

TABLE 2

DEGREES CONFERRED BY FIELD OF STUDY

THREE-YEAR COMPARISON

Urbana Campus -- Chicago Medical Center -- Totals

URBANA

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1965-66	1964-65	1963-64	1965-66	1964-65	1963-64
Accountancy	6	7	4	2	8	16
Advertising	a/	a/	a/	10	9	5
Aeronautical and Astronautical Engineering	3	4	1	15	4	10
Agricultural Economics	9	4	1	17	17	13
Agricultural Education	a/	a/	a/	2	2	3
Agricultural Engineering	a/	a/	a/	6	9	8
Agronomy	10	9	8	13	13	14
Animal Nutrition	0	0	2	a/	a/	a/
Animal Science	11	10	5	6	6	10
Anthropology	0	1	0	4	3	1
Architectural Engineering	a/	a/	a/	14	21	12
Art Education	a/	a/	a/	9	7	3
Art History	a/	a/	a/	4	0	3
Astronomy	0	3	0	2	4	3
Biology b/	3	0	0	6	10	7
Biophysics	1	1	2	1	2	3
Botany	3	3	8	6	12	8
Business	3	6	12	a/	a/	a/
Ceramic Engineering	2	2	5	5	10	6
Ceramics	0	0	0	1	0	0
Chemical Engineering	11	13	6	11	14	11
Chemical Physics	1	0	0	0	0	0
Chemistry	51	54	44	71	70	41
Civil Engineering	33	20	39	92	98	108
Classical Philology	2	0	1	a/	a/	a/
Classics	a/	a/	a/	1	1	2
Commercial Teaching	a/	a/	a/	9	5	7
Communications	5	5	8	a/	a/	a/
Comparative Literature	a/	a/	a/	1	3	a/
Dairy Science	1	3	3	12	2	5
Dairy Technology	3	0	0	1	0	3
Dance	a/	a/	a/	3	3	2
Economics	4	9	13	18	24	40
Education	24	12	17	7	12	16
Education of Deaf	a/	a/	a/	0	0	0
Education of Mentally Handicapped Children	a/	a/	a/	0	1	2

---

a/ Degree not offered.

b/ Formerly Biological Sciences.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1965-66	1964-65	1963-64	1965-66	1964-65	1963-64
Electrical Engineering	30	32	36	77	96	78
English	20	17	18	54	53	41
Entomology	8	7	4	1	4	2
Finance	4	1	2	3	4	9
Food Science[c]	8	7	8	7	1	5
Forestry	[a]	[a]	[a]	5	5	2
French	9	1	2	22	13	16
Geography	2	3	2	10	8	3
Geology	12	15	11	8	17	7
German	1	5	0	8	3	4
Greek	[a]	[a]	[a]	0	0	0
Health Education	[a]	[a]	[a]	9	7	4
History	3	7	9	29	45	34
Home Economics	0	0	0	13	17	16
Home Economics Education	[a]	[a]	[a]	0	1	1
Horticulture	1	4	3	1	0	6
Italian	0	0	0	0	0	0
Journalism	[a]	[a]	[a]	11	6	8
Labor and Industrial Relations	[a]	[a]	[a]	23	15	20
Latin	[a]	[a]	[a]	0	2	4
Library Science	4	2	4	113	99	88
Linguistics	6	1	0	3	2	3
Management	[a]	[a]	[a]	4	4	6
Marketing	3	3	2	9	10	7
Mathematics	25	13	23	133	112	103
Mechanical Engineering	4	11	14	41	45	47
Metallurgical Engineering	4	8	5	12	6	11
Microbiology	8	7	5	5	5	6
Mining Engineering	1	0	3	0	3	1
Music Education	[a]	[a]	[a]	56	46	37
Musicology	2	2	0	[a]	[a]	[a]
Nuclear Engineering	8	1	1	17	15	18
Philosophy	1	4	2	10	6	3
Physical Education	9	10	7	39	30	30
Physical Sciences	[a]	[a]	[a]	0	0	0
Physics	29	18	25	75	78	78
Physiology	6	5	7	14	17	8
Plant Pathology	5	3	1	5	5	3
Political Science	5	5	4	11	3	8
Portuguese	0	0	0	0	1	1
Psychology	21	26	16	31	22	19
Public Administration	[a]	[a]	[a]	4	2	0

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[a] Degree not offered.

[c] Formerly Food Technology.

DEGREES CONFERRED (Continued)

FIELD OF STUDY	Ph.D.			A.M. and M.S.		
	1965-66	1964-65	1963-64	1965-66	1964-65	1963-64
Radio and Television	a/	a/	a/	5	6	5
Recreation	a/	a/	a/	23	19	22
Russian	0	0	0	4	6	6
Sanitary Engineering	6	0	3	7	8	5
Social Sciences	a/	a/	a/	13	6	4
Sociology	3	2	8	5	4	4
Spanish	4	3	2	25	10	22
Speech	5	16	8	30	32	27
Speech Correction	a/	a/	a/	5	5	3
Statistics	1	0	0	3	1	4
Teaching of Biological Sciences and General Science	a/	a/	a/	10	6	17
Teaching of Chemistry	a/	a/	a/	2	1	1
Teaching of English	a/	a/	a/	10	4	5
Teaching of French	a/	a/	a/	2	1	0
Teaching of Geography	a/	a/	a/	2	2	0
Teaching of German	a/	a/	a/	0	0	0
Teaching of Latin	a/	a/	a/	1	1	0
Teaching of Mathematics	a/	a/	a/	21	32	16
Teaching of Physical Sciences	a/	a/	a/	1	1	0
Teaching of Physics	a/	a/	a/	2	1	0
Teaching of Russian	a/	a/	a/	1	0	0
Teaching of Social Studies	a/	a/	a/	22	13	4
Teaching of Spanish	a/	a/	a/	0	4	1
Teaching of Speech	a/	a/	a/	1	0	2
Theoretical and Applied Mechanics	12	16	18	11	11	16
Urban Planning	a/	a/	a/	0	5	7
Veterinary Medical Science	10	4	4	13	10	8
Zoology	8	10	5	9	16	9
Subtotal	474	435	441	1,439	1,382	1,287

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a/ Degree not offered.

DEGREES CONFERRED (Continued)

PROFESSIONAL DEGREES CONFERRED - URBANA

FIELD OF STUDY	1965-66	1964-65	1963-64
Doctor of Business Administration	1	0	0
Doctor of Education in			
Education	32	30	24
Music Education	1	4	11
Doctor of Musical Arts	7	6	4
Doctor of the Science of Law	1	0	0
Advanced Certificate in			
Education	46	47	50
Music Education	3	4	2
Certificate of Advanced Study in Librarianship	1	1	1
Master of Accounting Science	28	32	30
Master of Architecture	17	15	20
Master of Business Administration	24	35	18
Master of Commerce	1	4	1
Master of Comparative Law	3	5	2
Master of Education	465	359	404
Master of Extension Education	2	5	5
Master of Fine Arts in			
Design	5	1	0
Landscape Architecture	0	0	1
Painting and Printmaking	10	13	11
Master of Landscape Architecture	2	2	a/
Master of Laws	1	7	1
Master of Music	42	39	31
Master of Social Work	85	52	48
Master of Television	4	1	0
Master of Urban Planning	11	3	a/
Subtotal	792	665	664
TOTAL DEGREES CONFERRED, URBANA	2,705	2,482	2,392

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a/ Degree not offered.

DEGREES CONFERRED (continued)

CHICAGO MEDICAL CENTER

FIELD OF STUDY	Ph.D.			M.S.		
	1965-66	1964-65	1963-64	1965-66	1964-65	1963-64
MEDICAL						
Anatomy	0	4	0	3	1	3
Biochemistry	6	4	7	6	5	3
Microbiology	3	0	3	6	5	3
Pathology	0	1	0	0	1	0
Pharmacology	5	0	1	2	2	2
Physiology	2	3	2	4	3	0
Radiology	0	0	0	2	0	0
Surgery	0	0	0	6	9	5
Totals Majoring in Medical Sciences	16	12	13	27	29	15
PHARMACY						
Chemistry	1	4	2	1	0	2
Pharmacognosy	0	1	0	1	0	0
Pharmacy	3	1	0	4	2	4
Totals Majoring in Pharmacy Sciences	4	6	2	6	2	6
DENTAL						
Histology	0	0	0	2	5	7
Oral Pathology	0	0	0	0	0	1
Oral Surgery	0	0	0	1	1	2
Orthodontics	0	0	0	9	10	5
Pedodontics	0	0	0	5	1	2
Totals Majoring in Dental Sciences	0	0	0	17	17	17
NURSING						
Nursing	0	0	0	6	4	0
TOTAL DEGREES CONFERRED, CHICAGO	20	18	15	56	52	38

TOTAL DEGREES CONFERRED

	1965-66	1964-65	1963-64
TOTAL, URBANA AND CHICAGO CAMPUSES	2,781	2,552	2,445

TABLE 3

SUMMARY OF FELLOWS IN RESIDENCE
1965-1966

TYPE OF FELLOWSHIP	NUMBER (As of October, 1965)			
I. Supported by University Funds				
A. University Fellows		139		
B. University Teaching Fellows		52		
C. Creative and Performing Arts Fellows		8		
D. Illinois College Fellows		5		
Total			204	
II. Supported by Industries, Endowments, and Foundations				
A. Industries		64		
B. Endowments		28		
C. Woodrow Wilson Foundation		10		
D. Other Foundations		13		
Total			115	
III. Supported by the State of Illinois		4		
Total			4	
IV. Supported by the U. S. Government				
A. National Science Foundation				
1. Graduate Fellows	38			
2. Cooperative Fellows	32			
3. Trainees	85			
4. Science Faculty Fellows	10			
5. Mathematics Institute Fellows	47			
6. Information Trainees	2			
Subtotal		214		
B. U. S. Public Health Service				
1. Predoctoral Fellows	54			
2. Trainees	147			
3. National Institute of Mental Health Fellows	26			
Subtotal		227		
C. U. S. Office of Education				
1. Predoctoral Fellows	31			
2. National Defense Education Act - Title IV Fellows	92			
3. National Defense Education Act - Title VI Fellows	11			
Subtotal		134		
D. Other Health, Education, and Welfare				
1. Vocational Rehabilitation Admin. Fellows	50			
2. U. S. Child Bureau Fellows	6			
Subtotal		56		
E. Other U. S. Government				
1. National Aeronautics and Space Admin. Fellows	42			
2. Atomic Energy Commission Fellows	12			
Subtotal		54		
Total			685	
GRAND TOTAL, 1965-1966				1,008
GRAND TOTAL, 1964-1965 a/				853
GRAND TOTAL, 1963-1964 b/				760

a/ As of January, 1965

b/ As of October, 1963

TABLE 4

UNIVERSITY FELLOWSHIP AWARDS FOR 1966-67 a/

DEPARTMENTS	NUMBER OF AWARDS
Accountancy	4
Advertising	1
Aeronautical and Astronautical Engineering	4
Agricultural Economics	4
Agricultural Engineering	2
Agronomy	8
Animal Science	4
Anthropology	6
Architecture	4
Art	6
Astronomy	1
Biological Sciences	1
Botany	2
Business (Ph.D.)	2
Business Administration	3
Ceramic Engineering	-
Chemical Engineering	13
Chemistry	39
Civil Engineering	19
Classics	6
Comparative Literature	4
Computer Science	3
Communications	2
Dairy Science	1
Dance	1
Economics	7
Education	7
Electrical Engineering	21
English	15
Entomology	2
Finance	2
Food Science (Including Dairy Technology)	1
French	7
Geography	5
Geology	7
German	8
History	16
Home Economics	3
Horticulture	2
Industrial Administration	-
Journalism	2
Labor and Industrial Relations	1
Landscape Architecture	3
Law	3

a/ The figures represent awards offered and are not adjusted for resignations or declinations. Figures tabulated as of March 28, 1966.

UNIVERSITY FELLOWSHIP AWARDS (continued) a/

Library Science	1
Linguistics	4
Marketing	1
Mathematics	21
Mechanical Engineering	6
Mining, Metallurgical, and Petroleum Engineering	2
Music	17
Nuclear Engineering	4
Philosophy	5
Physical Education	1
Physics	27
Physiology-Biophysics	3
Political Science	8
Psychology	11
Radio and Television	1
Russian (Slavic Languages)	3
Social Sciences	1
Social Work	2
Sociology	3
Spanish	8
Speech	5
Theoretical and Applied Mechanics	6
Urban Planning	1
Veterinary Medicine	-
Zoology	6
TOTAL	399

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a/ The figures represent awards offered and are not adjusted for resignations or declinations. Figures tabulated as of March 28, 1966.

TABLE 5

FACULTY SUMMER FELLOWSHIP AWARDS
1961-1966 a/

DEPARTMENT	Summer Sessions					
	1961	1962	1963	1964	1965	1966
Accountancy	1	-	-	-	1	1
Advertising	-	-	-	-	-	1
Anthropology	-	1	1	-	1	-
Architecture	-	1	-	-	1	-
Art	4	4	6	8	6	8
Astronomy	-	-	1	-	-	-
Botany	1	1	1	1	-	-
Chemistry and Chemical Engineering	-	2	1	2	2	1
Civil Engineering	2	2	-	-	-	-
Classics	-	2	-	-	1	-
Dance	-	-	1	-	-	-
Division of General Studies	1	-	2	-	1	-
Economics	-	3	4	2	2	3
English	4	4	7	7	7	11
Entomology	2	-	-	-	-	1
Finance	-	-	-	1	2	1
French	1	2	1	2	2	2
Geography	1	-	2	1	1	-
Geology	1	-	2	1	1	-
German	-	-	1	2	2	4
History	2	2	-	2	3	5
Industrial Administration	-	-	-	1	1	-
Journalism	-	-	1	1	-	-
Law	-	-	1	-	3	3
Management	-	1	-	-	-	-
Mathematics	-	-	2	3	4	-
Music	2	1	1	2	1	2
Philosophy	1	1	2	2	-	1
Political Science	1	1	1	1	1	1
Physical Education (Men)	-	-	-	-	-	1
Physiology-Biophysics	-	-	-	-	-	1
Psychology	-	1	1	1	-	2
Slavic Languages and Literatures	1	1	1	2	-	1
Sociology	1	1	-	1	1	-
Spanish, Italian, and Portuguese	-	-	1	2	2	3
Speech and Theatre	-	-	-	2	1	-
Urban Planning and Landscape Architecture	1	-	-	-	-	-
Zoology	1	1	-	2	1	-
Chicago Undergraduate Division	4	5	5	4	8	-
Chicago Circle Departments						
Biological Sciences	-	-	-	-	-	3
Chemistry	-	-	-	-	-	3
German	-	-	-	-	-	1
Engineering	-	-	-	-	-	2
English	-	-	-	-	-	2
History	-	-	-	-	-	2
Mathematics	-	-	-	-	-	2
Philosophy	-	-	-	-	-	1
Political Science	-	-	-	-	-	1
TOTAL	31	38	44	52	55	70

a/ The figures represent awards offered and are not adjusted for resignations or declinations.

TABLE 6

SOURCE OF FUNDS FOR FELLOWSHIPS [a]
1954, 1958, 1963, 1964, and 1965

YEAR	UNIVERSITY		INDUSTRIAL ENDOWED AND FOUNDATIONS		FEDERAL AND OTHER [b]		TOTAL
	Amount	Per cent of Total Aid	Amount	Per cent of Total Aid	Amount	Per cent of Total Aid	
1954	$115,975	50.0%	$105,483	45.5%	$ 10,400	4.5%	$ 231,858
1958	246,000	40.1%	225,900	36.8%	141,545	23.1%	613,445
1963 [e]	391,365	24.7%	266,156	16.8%	926,090	58.5%	1,583,611
1964 [f]	430,050	21.5%	301,598	15.1%	1,271,121 [c]	63.4%	2,002,769
1965 [g]	475,400	18.8%	258,715	10.2%	1,797,760 [d]	71.0%	2,531,875

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[a] Figures relate to a twelve-month period beginning in September of the designated year. They include dependency allowance to the extent known.

[b] Does not include NSF Mathematics Institute Fellowships.

[c] Includes federal funds and $21,100 granted by the State of Illinois.

[d] Includes federal funds and $14,400 granted by the State of Illinois.

[e] Tabulated as of October, 1963.

[f] Tabulated as of January, 1965.

[g] Tabulated as of October, 1965.

TABLE 7

NUMBER AND AMOUNT OF FELLOWSHIPS AND ASSISTANTSHIPS PER ENROLLED STUDENT BY AREA a/

1965-1966

AREA	FELLOWSHIPS PER ENROLLED STUDENT		ASSISTANTSHIPS PER ENROLLED STUDENT		FELLOWSHIPS PLUS ASSISTANTSHIPS PER ENROLLED STUDENT	
	Number	Amount b/	Number c/	Amount b/	Number	Amount b/
Physical Science d/	.208	$567	.644	$1,524	.852	$2,091
Engineering	.172	473	.504	1,236	.676	1,709
Biological Sciences	.190	561	.577	1,460	.767	2,021
Social Sciences	.123	289	.338	789	.461	1,078
Humanities	.127	329	.477	995	.604	1,324
Education	.072	179 e/	.227	554	.299	733
Fine and Applied Arts	.073	164	.272	605	.345	769
All Areas	.141	371	.433	1,025	.574	1,396

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a/ Calculated as of October, 1965, figures include University, industrial and endowed, State of Illinois, and federal fellowships; and assistantships supported from both University and contract and grant funds. Summer Fellowships for Teaching Assistants are not included.

b/ Amounts used for calculation do not include the monetary equivalent of tuition and fees which are waived, exempted, or paid by the sponsor.

c/ Assistantships are calculated on a one-half time basis.

d/ Does not include NSF Mathematics Institute Fellowships.

e/ Enrollment upon which these figures are calculated includes a substantial number of students, such as public school teachers, who attend the University on a part-time basis and who are regularly employed off-campus.

TABLE 8

FELLOWSHIP SUBVENTION GRANTS TO DEPARTMENTS 1965-1966

DEPARTMENT	AMOUNT
Accountancy	$ 1,000
Advertising	500
Aeronautical Engineering	4,500
Agricultural Economics	2,500
Agricultural Engineering	1,500
Agronomy	3,000
Animal Science	2,000
Anthropology	9,500
Architecture	1,500
Art	3,000
Astronomy	1,500
Botany	500
Business Administration	500
Ceramic Engineering	2,000
Chemical Engineering	6,500
Chemistry	38,750
Civil Engineering	15,750
Classics	2,500
Communications	500
Economics	5,000
Education	20,000
Electrical Engineering	14,500
English	10,500
Entomology	3,000
Finance	500
Food Science	1,500
French and Comparative Literature	4,000
Geography	2,500
Geology	4,500
Germanic Languages and Literatures	3,000
History	3,500
Home Economics	$ 500
Labor and Industrial Relations	500
Landscape Architecture	1,000
Law	1,000
Library Science	1,500
Linguistics	5,500
Mathematics	19,500
Mechanical and Industrial Engineering	6,000
Microbiology	1,500
Mining, Metallurgy, and Petroleum Engineering	3,500
Music	5,500
Nuclear Engineering	6,000
Philosophy	2,500
Physical Education	500
Physiology and Biophysics	9,000
Physics	23,000
Political Science	7,000
Psychology	7,500
Radio and Television	500
Slavic Languages and Literatures	3,000
Sociology	2,500
Spanish, Italian, and Portuguese	3,500
Speech and Theatre	4,500
Theoretical and Applied Mechanics	4,500
Urban Planning	500
Zoology	6,500
TOTAL	$ 297,000

TABLE 9

UNIVERSITY RESEARCH BOARD APPROPRIATIONS
1965-1966

	July 1, 1965, through June 30, 1966	
	Amount Appropriated	Research Assistants FTE*
For General University Purposes	$ 345,580	
For Humanities and Arts, Urbana	145,035	17.89
For Social Sciences, Urbana	225,776	25.79
For Education, Urbana	21,557	.84
For Biological Sciences, Urbana	134,954	2.16
For Physical Sciences, Urbana	423,403	3.78
For Chicago Circle	100,000	
TOTAL	$1,396,305	50.46

I. FOR GENERAL UNIVERSITY PURPOSES

Administrative and General Services	$ 1,000	
Contributions on Behalf of the University	500	
Fellowships - Faculty	62,100	
- Subvention Fund	100,000	
Provision of Special Facilities for Interdepartmental Use - Computer Science	75,000	
Library	102,630	
University Press	4,350	
Subtotal	$ 345,580	

II. FOR HUMANITIES AND ARTS, URBANA

Architecture	$ 5,100	1.13
Art	18,886	.51
Classics	9,511	1.00
English	10,296	2.00
English and Germanic Philology, Journal of	700	
French	11,592	2.25
Germanic Languages and Literatures	5,095	.95
Journalism	1,529	.30
Music	30,873	2.88
Russian Language and Area Studies, Center for	6,400	
Slavic Languages and Literatures	3,647	.62
Spanish, Italian, and Portuguese	12,042	1.70
Speech and Theatre	25,529	4.08
Urban Planning	3,835	.47
Subtotal	$ 145,035	17.89

*Salaries are included in the amounts shown in the dollar column.

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1965, through June 30, 1966	
	Amount Appropriated	Research Assistants FTE*
III. FOR SOCIAL SCIENCES, URBANA		
Accountancy	$ 2,725	
Advertising	9,975	
Agricultural Economics	3,000	
Anthropology	8,050	
Business Administration, Graduate School of	1,175	
Communications Research, Institute of	1,700	
Community Planning, Bureau of	495	
Economic and Business Research, Bureau of	7,065	
Economics	8,829	1.44
Finance	1,555	.25
Geography	2,800	
History	64,331	13.20
Industrial Administration	465	
Labor and Industrial Relations, Institute of	4,999	1.00
Law	15,319	2.52
Library Science	1,500	
Marketing	521	
Political Science	16,208	2.24
Psychology	43,283	3.27
Recreation and Municipal Park Administration	485	
Social Work, Jane Addams Graduate School of	320	
Sociology	29,182	1.65
Survey Research Laboratory	1,794	.22
Subtotal	$ 225,776	25.79
IV. FOR EDUCATION, URBANA		
Education	$ 17,432	.84
Exceptional Children, Institute for Research on	3,085	
Health and Safety Education	605	
Physical Education for Men	435	
Subtotal	$ 21,557	.84
V. FOR BIOLOGICAL SCIENCES, URBANA		
Agronomy	$ 18,495	
Animal Science	8,000	
Entomology	1,094	
Food Science	6,000	
Home Economics	85	
Horticulture	5,420	
Microbiology	22,000	.42
Physical Environment Unit	500	.11
Physiology and Biophysics	2,855	
State Natural History Survey	40	
Veterinary Medicine	8,000	
Zoology	62,075	1.63
Zoonoses Research, Center for	390	
Subtotal	$ 134,954	2.16

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*Salaries are included in the amounts shown in the dollar column.

UNIVERSITY RESEARCH BOARD APPROPRIATIONS (Continued)

	July 1, 1965, through June 30, 1966	
	Amount Appropriated	Research Assistants FTE*
VI. FOR PHYSICAL SCIENCES, URBANA		
Aeronautical and Astronautical Engineering	$ 2,920	
Agricultural Engineering	170	
Astronomy	9,260	
Ceramic Engineering	2,195	
Chemistry and Chemical Engineering	81,840	
Civil Engineering	57,835	3.06
Computer Science	12,900	
Coordinated Science Laboratory	75,000	
Electrical Engineering	58,900	.53
Geology	20,176	.19
Mathematics	10,100	
Mechanical and Industrial Engineering	28,841	
Mining, Metallurgy, and Petroleum Engineering	6,181	
Nuclear Engineering	6,500	
Physics	24,985	
Radiocarbon Laboratory	3,700	
Theoretical and Applied Mechanics	21,900	
Subtotal	$ 423,403	3.78
VII. FOR CHICAGO CIRCLE		
Committee on Research at Chicago Circle	$ 100,000	

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*Salaries are included in the amounts shown in the dollar column.

TABLE 10

STATISTICAL SUMMARY OF APPLICATIONS FOR GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1965, through June 30, 1966

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1966)					APPLICATIONS PENDING (as of June 30, 1966)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	43	$ 5,636,689	34	$ 2,360,694	$ 1,036,381	0	$ 0	9	$ 3,275,995
Humanities	17	1,074,005	5	311,646	301,923	1	40,041	11	722,318
Arts	14	403,842	9	248,650	248,650	0	0	5	155,192
Social Sciences, Pure	81	5,610,399	34	1,867,786	804,263	11	1,606,402	36	2,136,211
Social Sciences, Applied	46	994,451	26	572,576	526,753	3	92,330	17	329,545
Education	77	7,200,994	29	2,461,437	1,896,913	7	768,052	41	3,971,505
Biological Sciences, Pure	98	5,193,330	44	2,330,253	1,534,008	9	220,546	45	2,642,531
Biological Sciences, Applied	188	4,894,333	114	1,642,127	1,521,959	8	351,261	66	2,900,945
Physical Sciences, Pure	142	10,612,867	63	2,307,879	1,938,424	10	476,307	69	7,828,681
Physical Sciences, Applied	301	32,530,282	105	15,071,161	14,488,966	35	1,894,130	161	15,564,991
Total	1007	$74,151,192	463	$29,174,209	$24,298,240	84	$5,449,069	460	$39,527,914

TABLE 11

STATISTICAL SUMMARY OF APPLICATIONS FOR GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from July 1, 1964, through June 30, 1965

	APPLICATIONS SUBMITTED		APPLICATIONS ACTED ON (as of June 30, 1966)					APPLICATIONS PENDING (as of June 30, 1966)	
			Supported in whole or in part			Denied			
Area	No.	Amount Requested	No.	Amount Requested	Amount Received	No.	Amount Requested	No.	Amount Requested
Administration	20	$ 5,632,738	13	$ 5,250,654	$ 3,082,887	7	$ 382,084	0	$ 0
Humanities	14	1,297,338	12	1,194,445	1,114,106	2	102,893	0	0
Arts	11	580,305	8	153,644	106,467	1	111,016	2	315,645
Social Sciences, Pure	84	8,504,062	59	2,259,292	1,630,919	23	3,945,832	2	2,298,938
Social Sciences, Applied	43	1,813,391	39	1,681,251	1,658,336	3	96,338	1	35,802
Education	61	10,105,292	36	4,004,765	2,590,656	19	5,108,138	6	992,389
Biological Sciences, Pure	84	3,615,276	69	3,002,962	2,100,654	9	311,545	6	300,769
Biological Sciences, Applied	177	3,523,948	152	2,423,009	2,141,299	20	918,423	5	182,516
Physical Sciences, Pure	166	12,358,500	118	8,013,197	5,561,396	41	4,029,381	7	315,922
Physical Sciences, Applied	328	22,849,183	221	14,333,984	11,331,186	94	8,103,497	13	411,702
Total	988	$70,280,033	727	$42,317,203	$31,317,906	219	$23,109,147	42	$4,853,683

TABLE 12

INSTITUTIONAL GRANT FUNDS
1965-1966

A. National Science Foundation Institutional Grant

Received and assigned entirely to Center for Advanced Study	$ 138,952

B. Grants Provided in Conjunction with Fellowships

Receipts:

NASA	$ 120,000	
NDEA Fellows	115,000	
NSF National Fellows	47,500	
NSF Cooperative Fellows	40,000	
USPHS Fellows	58,750	
NSF Science Faculty Fellows	9,687	
NSF Grad Trainees	215,000	
Office of Education Fellows	42,750	
State of Illinois	6,250	
Woodrow Wilson Fellows	20,000	
TOTAL		674,937

Allocations:

Administrative and General Services	$ 57,653
Aeronautical and Astronautical Engineering	2,920
Agricultural Engineering	170
Astronomy	260
Center for Zoonoses	390
Chemistry and Chemical Engineering	30,950
Chicago Circle	3,408
Civil Engineering	30,584
Computer Science	12,900
Dance	5,000
Home Economics	85
Instruction Bureau of Educational Research	5,200
Mathematics	10,100
Mechanical Engineering	16,300
Nuclear Engineering	6,500
Physics	9,925
Physiology and Biophysics	200
Radiocarbon Laboratory	2,400
Slavic Languages and Literatures	750
Spanish, Italian, and Portuguese	485
State Natural History Survey	40
Theoretical and Applied Mechanics	3,260
Zoology	1,460

INSTITUTIONAL GRANT FUNDS (continued)

Fellowship Stipends, Tuition and Fees, Medical Fees	60,000	
Fellowship Subvention (see Table 8 for departmental allocations)		
NASA Fellowships	21,000	
NDEA Fellowships	46,000	
NSF Cooperative and Science Faculty Fellowships	21,000	
NSF National Fellowships	19,000	
USPHS Predoctoral Fellowships	27,250	
NSF Grad Trainees	42,500	
Office of Education Fellowships	15,000	
State of Illinois	2,500	
Woodrow Wilson Fellowships	5,000	
TOTAL		$ 460,190

TABLE 13

UNIVERSITY PRESS PUBLICATIONS [a/]

May 1, 1965 to May 1, 1966

THE ILLINOIS STUDIES SERIES

Books Published

Alkire: Lamotrek Atoll and Inter-Island Socioeconomic Ties (AN)
Daubs: A Monograph of Lemnaceae (BM)
DeLey: Marcel Proust et le Duc de Saint-Simon (LL)
Nauert: Agrippa and the Crisis in Renaissance Thought (LL)
Schmidt: The Molecular Basis of Regeneration: Enzymes (MM)

Books in Process

Brandon: Systematics of the Salamander Genus Grinophilus (BM)
Campbell: A Revision of the Genus Lobopoda in North America and West Indes (BM)
List: Comparative Osteology of the Snake Families Typhlopidae and Leptotyphlopidae (BM)

ILLINI BOOKS (Paperback Series)

Books Published

IB-21 Kendall: John Locke and the Doctrine of Majority Rule
IB-22 James: The Framing of the Fourteenth Amendment
IB-23 Christman: The Mind and Spirit of John Peter Altgeld
IB-24 Whitnah: History of the United States Weather Bureau
IB-25 Siebert: Freedom of the Press in England
IB-26 Lacy: Freedom and Communication
IB-27 Kelley: The Early Development of Henry James
IB-28 Winter: Beyond the Mountains of the Moon
IB-29 LaFave (ed.): Law in the Soviet Society
IB-30 Haile: The History of Doctor Johann Faustus
IB-31 Willkie: One World
IB-32 Ray: Thackeray's Contributions to the Morning Chronicle
IB-33 Herrick: Italian Comedy in the Renaissance
IB-34 Valdes: Death in the Literature of Unamuno
IB-35 Rosenfeld: Port of New York

Books in Process

IB-36 Downs: How to Do Library Research
IB-37 Richardson: Henry James: Representative Selections
IB-38 Gusfield: Symbolic Crusade
IB-39 Gentile: Genesis and Structure of Society
IB-40 Harris: The Social Philosophy of Giovanni Gentile

[a/] The titles shown in the Illinois Studies Series were financed partly from funds of the Graduate College and partly from the Press Revolving Fund. The non-serial publications were financed from the Scholarly Publications Account in the Graduate College and the Revolving Fund of the University Press. Grants from the Ford Foundation also aided in financing the scholarly publications program.

UNIVERSITY PRESS PUBLICATIONS (Continued)

NON-SERIAL PUBLICATIONS

Books Published

Anton: The Politics of State Expenditure in Illinois
Breimyer: Individual Freedom and the Economic Organization of Agriculture
Clark: The Grain Trade in the Old Northwest
Conrad: The Forgotten Farmers: The Story of Sharecroppers in the New Deal
Crosby (ed.): Edicion Critica de la Politica de Dios de Quevedo
Flanders: Nauvoo: Kingdom on the Mississippi
Fleming: The Labor Arbitration Process
Haile: The History of Doctor Johann Faustus
Hannah: Resource Book for Rural Universities in the Developing Countries
Heitman: Historical Register and Dictionary of the U. S. Army
Jones: An Annotated Bibliography of Mexican Ferns
Kabrisky: A Proposed Model for Visual Information Processing in the Human Brain
LaFave (ed.): Law in the Soviet Society (clothbound edition)
McBurney: English Prose Fiction in the University of Illinois Library, 1700-1800
Moles: Information Theory and Esthetic Perception
Paul: Edmund Wilson: A Study of Literary Vocation in Our Time
Pavlovsky: The Natural Nidality of Transmissible Diseases
Scott: On the Poetry of Mark Twain
Seagrave, Thomas: The Songs of the Minnesingers
Shattuck: The Shakespeare Promptbooks
Shover: The Cornbelt Rebellion: The Farmers' Holiday Association
Spencer: Five Restoration Adaptations of Shakespeare
Sturmthal: White Collar Unionism
Zucker: George Norris: Gentle Knight of Democracy

Books in Process

Bates: Tom Walsh in Dakota Territory
Cattell and Warburton: Objective Personality and Motivation Tests
Dillon: Benjamin Lundy and the Struggle for Negro Freedom
Downs: How to Do Library Research
Fairbanks: Readings in Experimental Phonetics
Glad: Illusions of Innocence
Hennig: Phylogenetic Systematics
Herrick: Italian Plays, 1500-1700, in the University of Illinois Library
Hicken: Illinois in the Civil War
Hyman: New Frontiers of the American Reconstruction
LaFave: International Trade, Investment, and Organization
Lee: From West to East: Studies in the Literature of the American West
Steward: Contemporary Change in Traditional Societies: Africa
Strickland: History of the Chicago Urban League

TABLE 14

ENROLLMENT AND DEGREES CONFERRED
CHICAGO MEDICAL CENTER
1965-1966

DEPARTMENT	1965 Summer	1965 Fall	1965-66 Winter	1966 Spring	M.S. Degrees	Ph.D. Degrees
MEDICAL						
Anatomy	19	26	26	26	3	-
Biochemistry	55	61	58	48	4	6
Microbiology	27	24	27	26	6	3
Pathology	6	10	8	8	-	-
Pharmacology	23	24	22	22	2	5
Physiology	32	41	43	36	4	2
Radiology	1	2	2	1	2	-
Surgery	14	14	11	13	6	-
Orthopedic Surgery	1	1	1	1	-	-
Totals Majoring in Medical Sciences	178	203	198	181	27	16
DENTAL						
Histology	2	4	5	4	2	-
Oral Pathology	3	3	3	3	-	-
Oral Surgery	2	5	4	5	1	-
Orthodontics	12	13	14	15	9	-
Pedodontics	5	6	6	6	5	-
Totals Majoring in Dental Sciences	24	31	32	33	17	0
PHARMACY						
Chemistry	23	29	27	31	1	1
Pharmacognosy	1	1	1	1	1	-
Pharmacy	18	20	18	17	4	3
Totals Majoring in Pharmacy Sciences	42	50	46	49	6	4
NURSING						
Psychiatric	1	14	14	10	6	-
Medical-Surgical	-	7	7	6	-	-
Totals Majoring in Nursing Sciences	1	21	21	16	6	0
GRAND TOTAL	245	305	297	279	56	20

TABLE 15

CLASSIFICATION OF STUDENTS AT
CHICAGO MEDICAL CENTER

1965-1966

ACADEMIC BACKGROUND

Doctor of Dentistry	40)	133 (44%)
Doctor of Medicine	39)	
Medical Students	20)	
Dental Students	2)	
Pharmacy Students	3)	
Bachelor of Science in Nursing	13)	
Bachelor of Science in Pharmacy	16)	
Bachelor of Science		172 (56%)

TABLE 16

CHICAGO MEDICAL CENTER
CURRENT TRAINING GRANTS
ADMINISTERED THROUGH GRADUATE COLLEGE OFFICE
1965-1966

ANATOMY		
	Dr. S. R. M. Reynolds	$ 33,296
	Dr. A. J. Schmidt	16,680
BIOLOGICAL CHEMISTRY		
	Dr. R. J. Winzler	65,920
HISTOLOGY (DENTAL)		
	Dr. J. A. Yaeger	52,403
	Dr. J. A. Yaeger	34,137
MEDICINE		
	Dr. H. F. Dowling	89,256
	Dr. M. Samter	25,380
	Dr. T. B. Schwartz	33,804
COLLEGE OF NURSING		
	Dr. R. Bliss	30,762
	Dr. M. Lohr	132,374
	Dr. M. Lohr	19,698
	Dr. M. Mullane	13,500
	Dr. M. Mullane	55,086
OCCUPATIONAL THERAPY		
	Miss B. Wade	18,729
OPHTHALMOLOGY		
	Dr. P. Kronfeld	51,716
ORTHOPAEDIC SURGERY		
	Dr. R. Ray	$ 29,649
OTOLARYNGOLOGY		
	Dr. F. Lederer	105,626
PEDIATRICS		
	Dr. M. Cornblath	24,000
	Dr. H. Knobloch	24,182
	Dr. I. Schulman	39,084
PHARMACOLOGY		
	Dr. M. Schulman	129,537
	Dr. C. Smith	36,232
	Dr. K. R. Unna	133,095
PHYSIOLOGY		
	Dr. L. Stark	40,068
	Dr. A. V. Wolf	66,001
PHYSICAL MEDICINE		
	Dr. D. I. Abramson	38,085
PSYCHIATRY		
	Dr. A. G. Burstein	22,464
	Dr. M. Sabshin	100,571
	Dr. M. Sabshin	51,840
	Dr. M. Sabshin	45,367
	Dr. M. Sabshin	50,000
	TOTAL	$1,608,542

TABLE 17

APPROPRIATIONS BY CHICAGO MEDICAL CENTER SUBCOMMITTEE OF THE UNIVERSITY RESEARCH BOARD

1965-1966

DEPARTMENT		APPROPRIATIONS
I. MEDICAL		
Anatomy		$ 16,793
Biological Chemistry		20,964
Medicine		6,990
Microbiology		41,687
Obstetrics and Gynecology		4,640
Orthopaedic Surgery		5,544
Pathology		1,000
Pharmacology		8,885
Physiology		10,329
	Subtotal	$116,832
II. DENTAL		
Oral Pathology		$ 1,064
Orthodontics		14,338
	Subtotal	$ 15,402
III. PHARMACY		
Chemistry (Pharmaceutical)		$ 31,183
Pharmacognosy		6,160
Pharmacy		7,632
	Subtotal	$ 44,975
IV. OTHER		
Subvention to departments in behalf of 1965-66 University Fellows - 3 @ $500 each		$ 1,500
Illustration Studios - Equipment Pool		1,674
Computer Facilities		41,390
	Subtotal	$ 44,564
	TOTAL	$221,773

TABLE 18

APPROPRIATIONS BY COMMITTEE ON RESEARCH, Chicago Circle through June 30, 1966

	Amount Appropriated
For General University Purposes	$ -
For Humanities and Arts	9,750
For Social Sciences	17,154
For Education	-
For Biological Sciences	33,389
For Physical Sciences	67,198
TOTAL	$ 127,491
I. For General University Purposes	-
II. For Humanities and Arts	
English	$ 6,150
German	3,600
Subtotal	$ 9,750
III. For Social Sciences	
Economics	$ 122
History	12,257
Psychology	4,215
Sociology	560
Subtotal	$ 17,154
IV. For Education	-
V. For Biological Sciences	
Biological Sciences	$ 33,389
Subtotal	$ 33,389
VI. For Physical Sciences	
Chemistry	$ 19,191
Geology	10,140
Information Engineering	3,600
Materials Engineering	8,270
Mathematics	8,757
Physics	16,940
Subtotal	$ 67,198

TABLE 19

STATISTICAL SUMMARY OF APPLICATIONS FOR GRANTS AND CONTRACTS SENT TO AGENCIES OUTSIDE THE UNIVERSITY

Data on Applications Transmitted from Sept. 1, 1964 through June 30, 1966

APPLICATIONS SUBMITTED			APPLICATIONS ACTED ON (as of June 30, 1966) Supported in Whole or in Part		
Area	No.	Amount Requested	No.	Amount Requested	Amount Received
Administration	3	$ 239,795	1	$ 69,613	$ 61,513
Humanities	5	206,117	3	179,398	169,400
Arts	0	-	0	-	-
Social Sciences, Pure	18	736,738	6	145,939	130,091
Social Sciences, Applied	1	13,300	0	-	-
Education	1	72,815	0	-	-
Biological Sciences, Pure	5	147,398	3	108,635	60,100
Biological Sciences, Applied	0	-	0	-	-
Physical Sciences, Pure	61	3,590,860	11	467,220	246,900
Physical Sciences, Applied	39	1,473,295	11	337,364	265,705
	133	$6,480,318	35	$1,308,169	$933,709

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